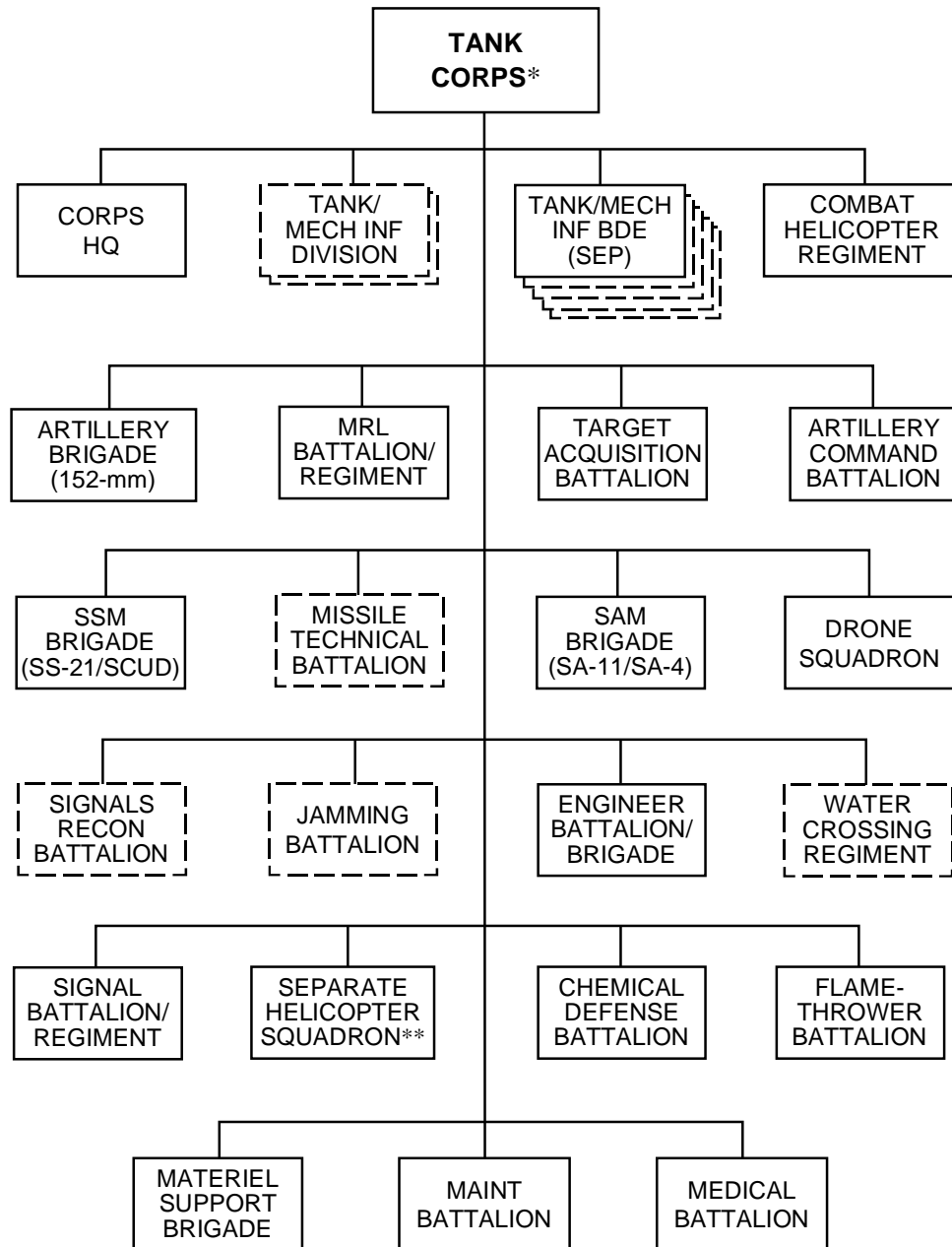


Tank Corps



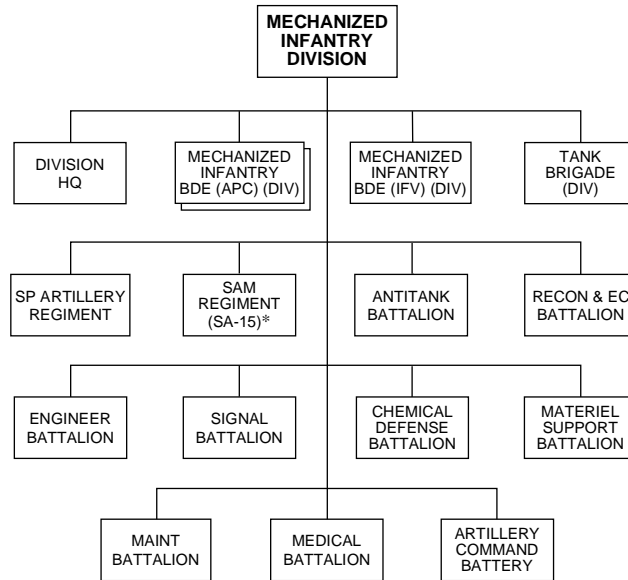
* A typical tank corps has one or two divisions and perhaps one or two separate tank or mechanized infantry brigades. The divisions are most likely to be tank divisions. It is also possible that some corps could consist entirely of separate brigades rather than divisions. In this case, there could be three to five separate brigades. These are the most likely to be separate tank brigades.

** Some corps may have a mixed aviation squadron instead of a separate helicopter squadron.

DIVISION

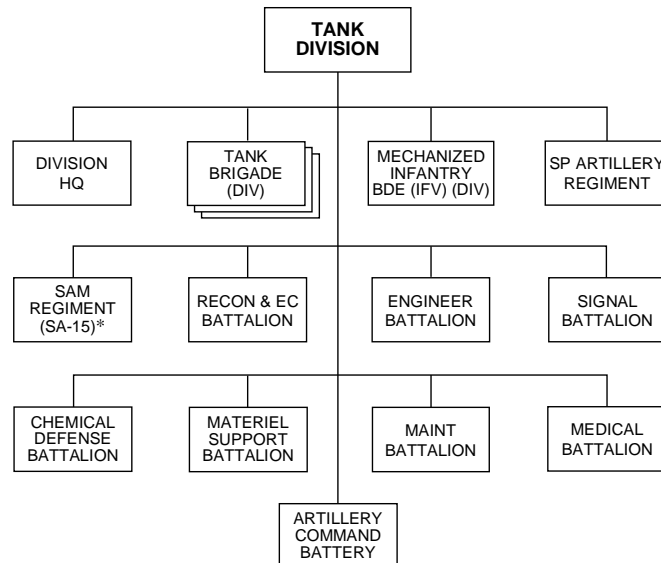
The ground forces have three basic types of maneuver division: the mechanized infantry division, the tank division, and the motorized infantry division. The divisions are combined arms organizations. A mechanized infantry organization has one tank brigade along with its mechanized infantry brigades. The latter may comprise two IFV-equipped brigades and one APC-equipped brigade or vice versa. A tank division has one IFV-equipped mechanized infantry brigade along with its three tank brigades. Combat support and combat service support units are basically the same for all mechanized infantry and tank divisions. The only differences are variations in the compositions of the self-propelled artillery regiment and maintenance battalion, and the fact that the tank division has no antitank battalion.

Mechanized Infantry Division (IFV)



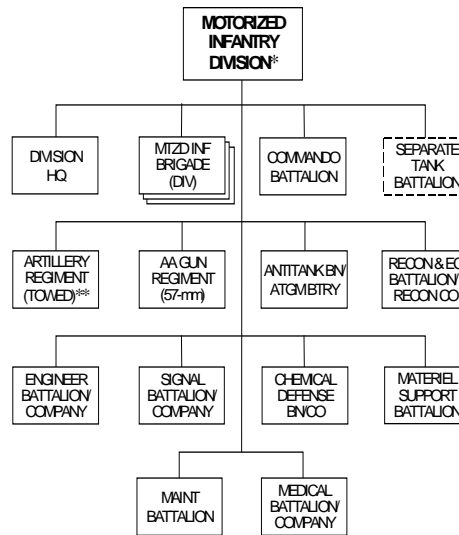
* Instead of the SA-15 SAM regiment, the tank division may have a SAM regiment equipped with the SA-6 or SA-8 or a 57-mm AA gun regiment.

Tank Division



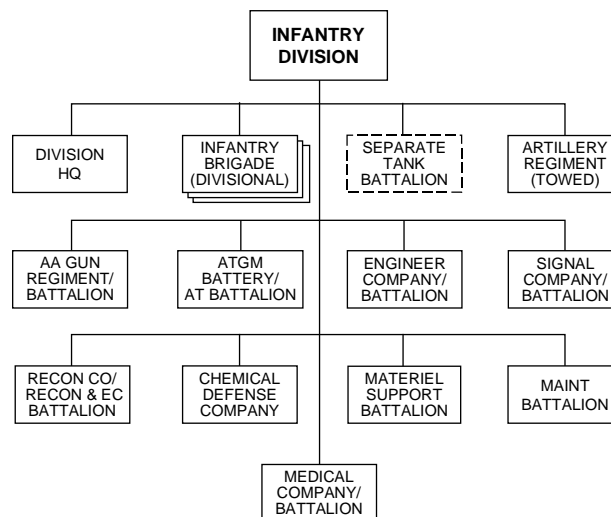
* Instead of the SA-15 SAM regiment, the tank division may have a SAM regiment equipped with the SA-8 or SA-6 or a 57-mm AA gun regiment.

Motorized Infantry Division



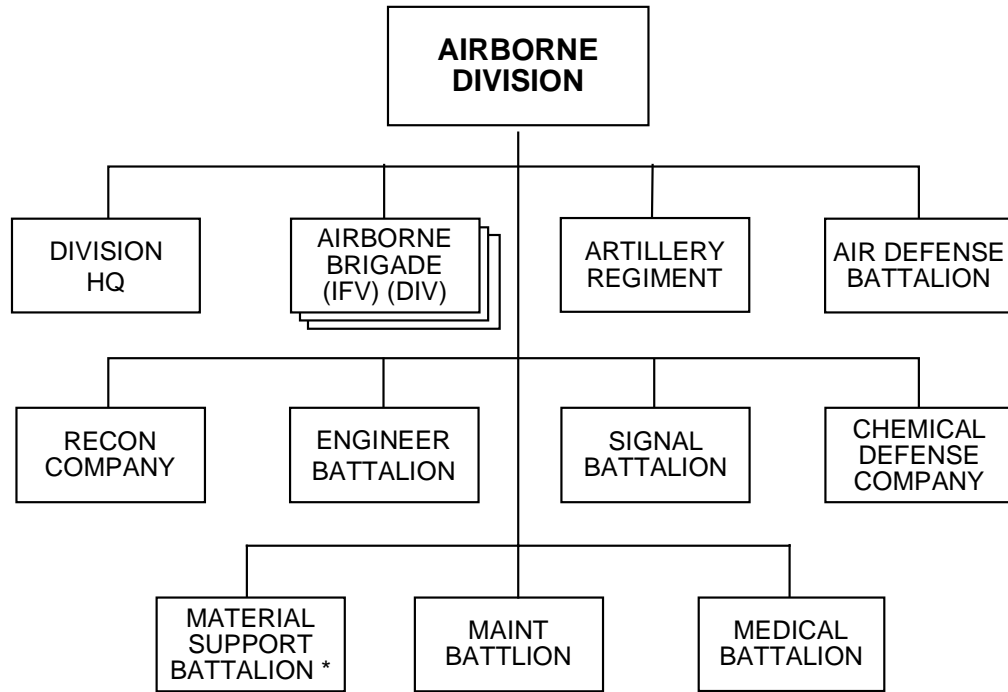
1. The basic maneuver units in this division are three motorized infantry brigades (divisional). These divisional brigades differ structurally from their separate counterparts normally found within military districts. In addition to its motorized infantry brigades, this division may or may not have a separate tank battalion.
2. Most motorized infantry divisions have an ATGM battery and company-sized engineer, signal, reconnaissance, and medical units. However, some better-equipped motorized infantry divisions may have battalion-sized antitank, engineer, signal, reconnaissance (and EC), and medical units.
3. Motorized infantry divisions are more common than mechanized or infantry divisions.

Infantry Division



1. The basic maneuver units in this division are infantry brigades (divisional). Divisional brigades differ structurally from their separate counterparts normally found within districts. In rare cases, an infantry division may include a separate tank battalion.
2. Most infantry divisions have company-sized engineer, signal, reconnaissance, and medical units. However, some better-equipped infantry divisions may have battalion-sized units of these types.
3. Infantry divisions are less common than motorized infantry divisions.

Airborne Division



* This battalion also performs the parachute rigging function for the division elements other than the airborne brigades. The brigades each have their own parachute rigging and resupply company.

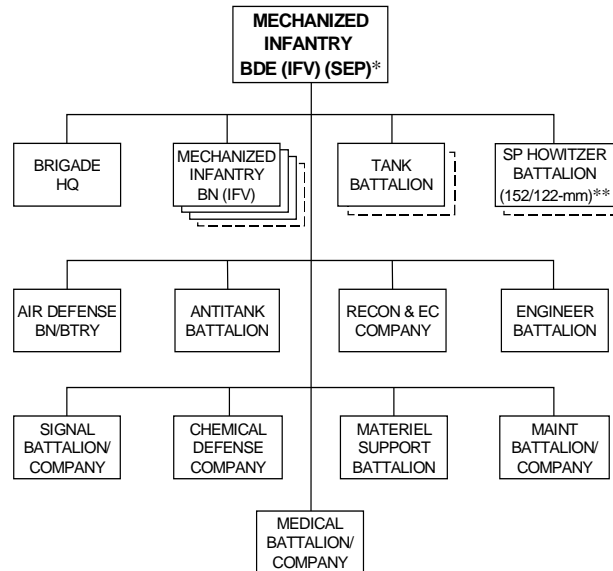
BRIGADE

The basic maneuver unit is the brigade, consisting of maneuver battalions and a wide array of combat support and combat service support elements. In contrast, a separate or independent* brigade is not a part of a division. Instead, it is directly subordinate to a corps, an army, or army group. Besides having more maneuver battalions, a separate brigade has some of the combat support and combat service support assets normally found at division level. The separate brigade needs these support assets to fight more independently, without relying on support from a parent division.

An armor- and mechanized-based OPFOR consists primarily of mechanized infantry units. The mechanized infantry brigade has two basic types: one equipped with infantry fighting vehicles (IFVs) and one equipped with (armored personnel carriers (APCs). The are also tank brigades. Each of these three types of maneuver brigade has separate and divisional versions. Also, even an armor- and mechanized-based OPFOR may have some truck-mounted motorized infantry.

The terms separate and independent are interchangeable and do not reflect a difference in organization.

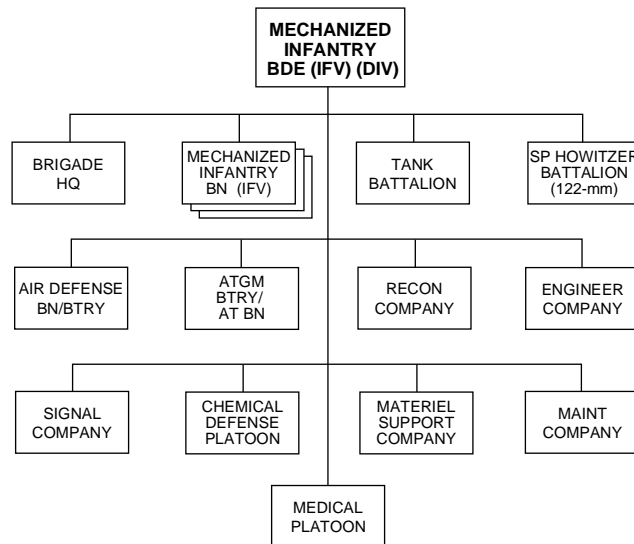
Mechanized Infantry Brigade (IFV) (Sep)



* A separate mechanized infantry brigade most likely has four mechanized infantry battalions and one 51-tank tank battalion. However, the mix might be three mechanized infantry battalions and two 31-tank tank battalions.

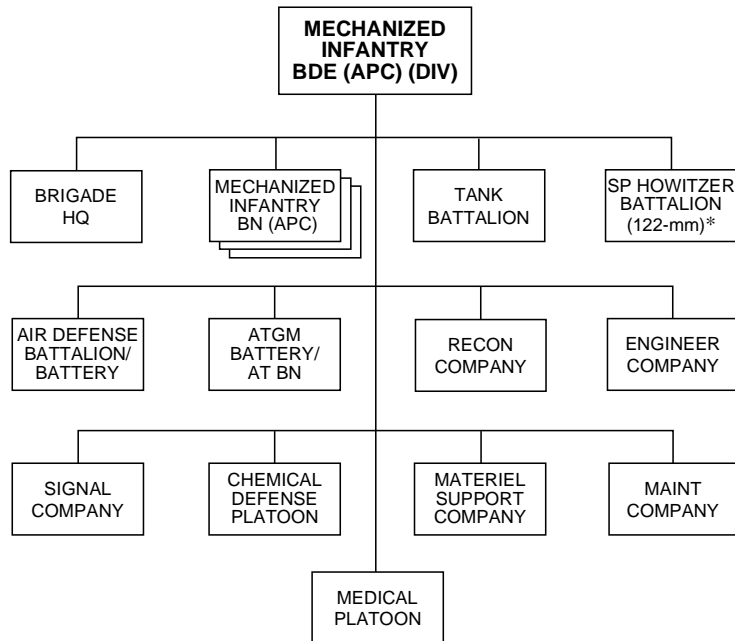
** When there is a single SP howitzer battalion, it may be either 122-mm or 152-mm, with 152-mm most likely. When there are two battalions, there may be one 122-mm and one 152-mm or, more likely, both 152-mm.

Mechanized Infantry Brigade (IFV) (Div), MID & TD



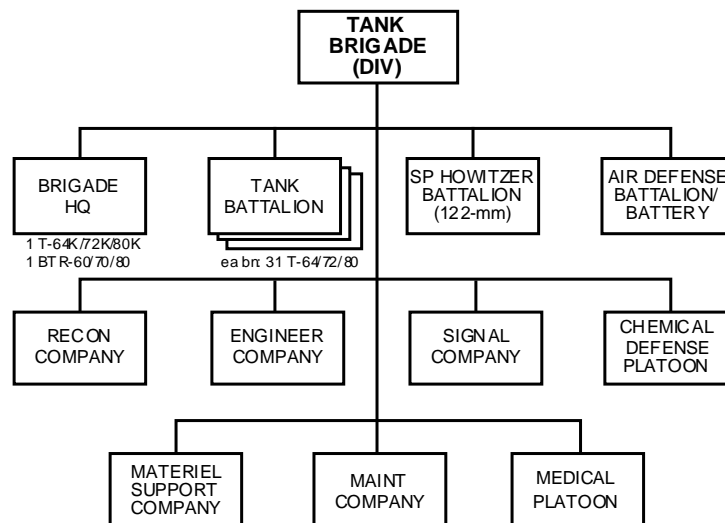
The MIBR (IFV) in the TD has only 2 MIBNs.

Mechanized Infantry Brigade (APC) (Div), MID

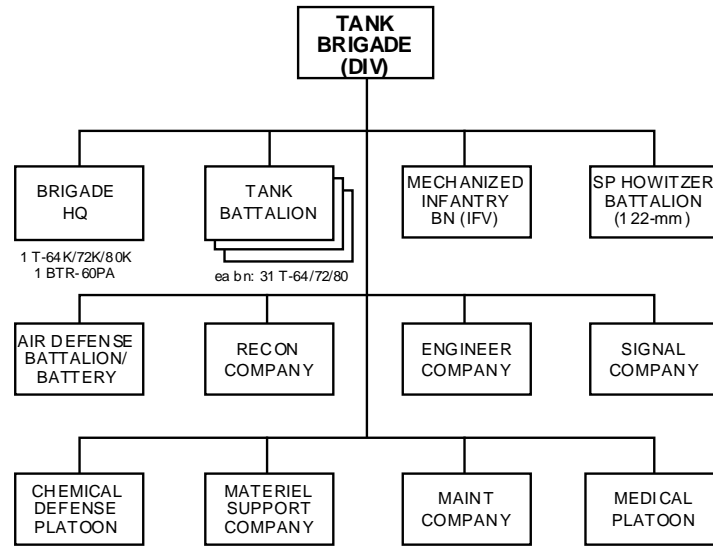


* The mechanized infantry brigade (APC) may have a battalion of 122-mm towed howitzers instead of this SP howitzer battalion.

Tank Brigade (Div), MID



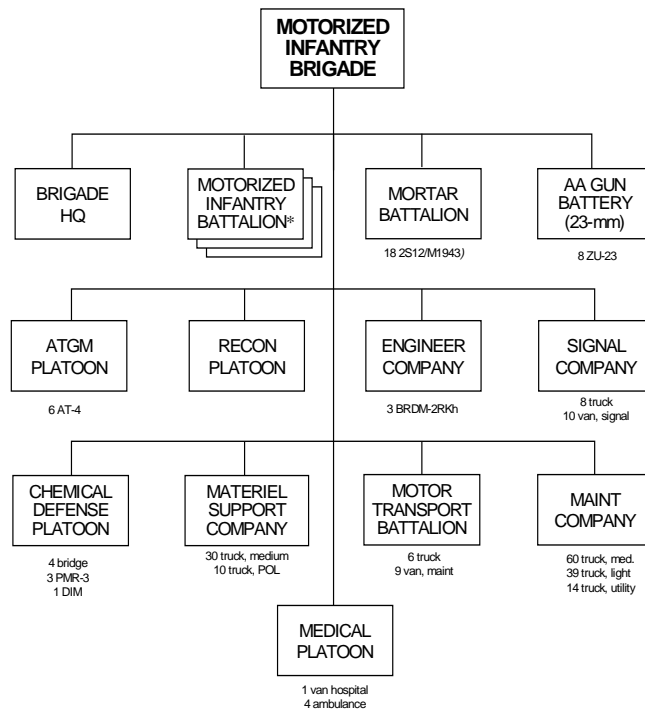
The Tank Brigade of a MID has no organic, subordinate Mechanized Infantry Battalion.

Tank Brigade (Div), TD

The Tank Brigade of a MID has a organic, subordinate Mechanized Infantry Battalion.

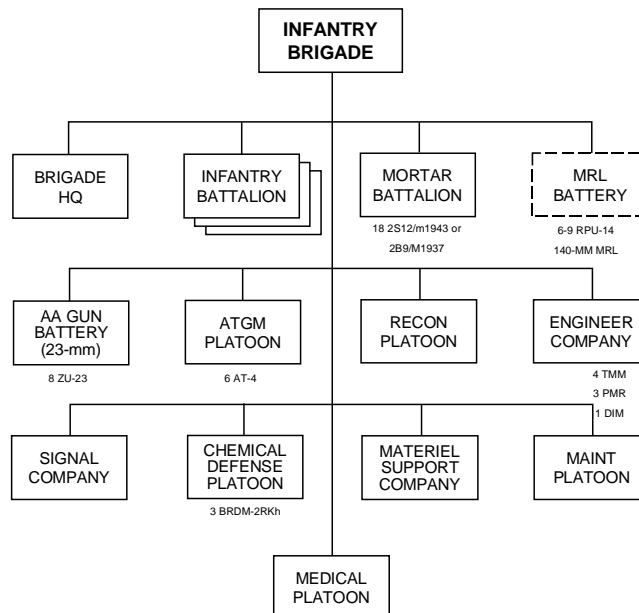
Weapons Systems Totals	MIBR (APC)	MIBR (IFV)	TBR (MID)	TBR (TD)	MIBR (sep.)
T-64/72/80	31	31	94	94	51
BMP-1/2/3BRM-1K	14	151	16	51	179
BTR-60/70/80	146	-	3	1	3
BTR (R-145BM)	19	10	8	22	22
BRDM-2/2U	8	8	4	4	4
ACRV SERIES	8	8	8	8	16
2S1	18	18	18	18	0
2S3/2S19	0	0	0	0	36
Mortar (2B9/2S12)	18	18	0	6	24
SA-13	6	6	6	6	6
2S6	6	6	6	6	6
SA-16/18	48	48	21	30	63
SA-15	0	0	0	0	8
9P148 w/AT-5	9	9	0	0	12
AT-4	18	18	0	6	24
AT-7	27	0	0	0	0
MT-12/2A45M	0	0	0	0	12
RPG-7V	152	146	36	71	-
SPG-9	9	0	0	0	0
RPK-74	102	102	21	48	-
AGS-17	18	18	0	6	24

Motorized Infantry Brigade (Divisional)



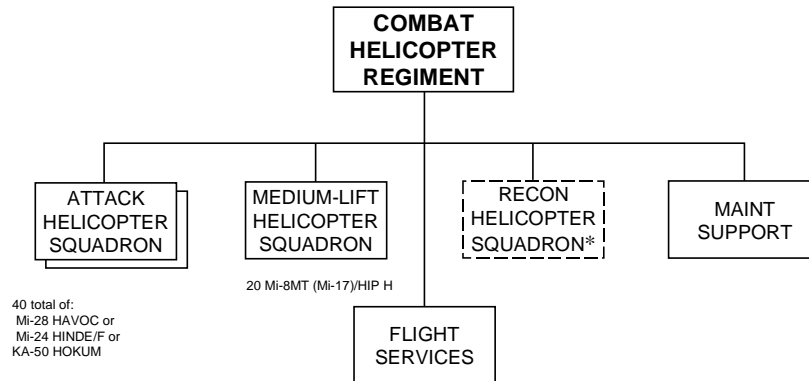
* In some motorized infantry brigades, one of these infantry battalions may be mechanized rather than motorized.

Infantry Brigade (Divisional)



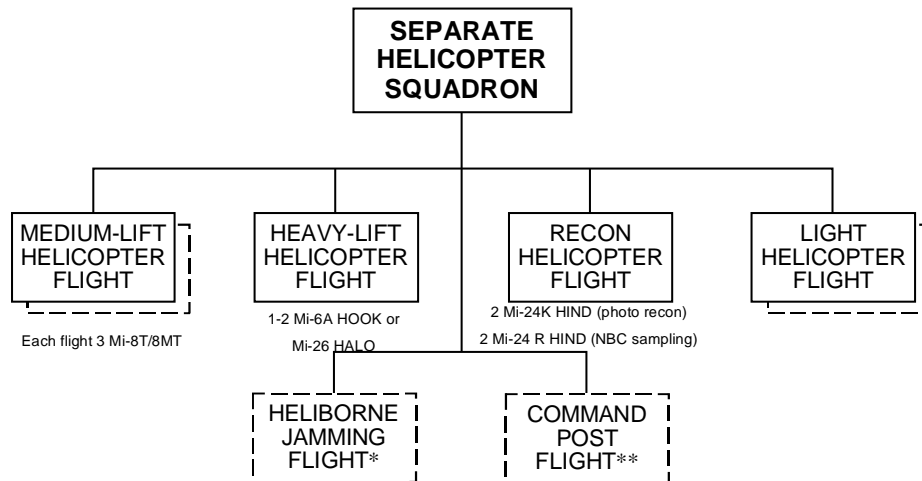
The MRL battery is not present in all infantry brigades.

Combat Helicopter Regiment, Army or Corps



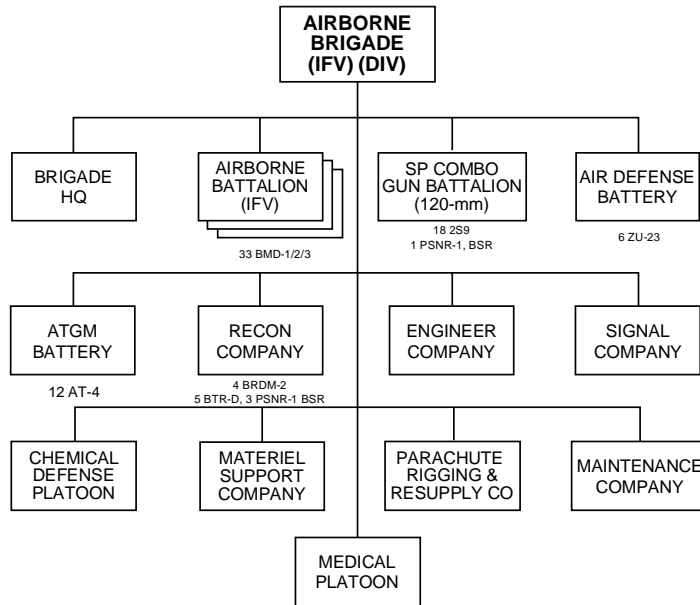
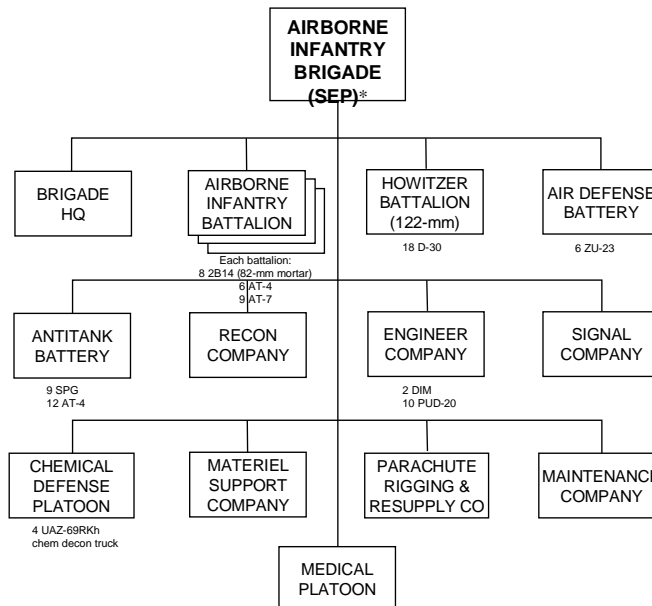
* Some combat helicopter regiments may also include six Mi-24R/HIND G1 NBC-sampling helicopters and six Mi-24K/HIND G2 photoreconnaissance helicopters.

Separate Helicopter Squadron, Army



*Some separate helicopter squadrons may also have two or three Mi-8SMV/HIP J and two or three Mi-8PPA/HIP K or Mi-8MT (Mi-17P)/HIP H jamming helicopters.

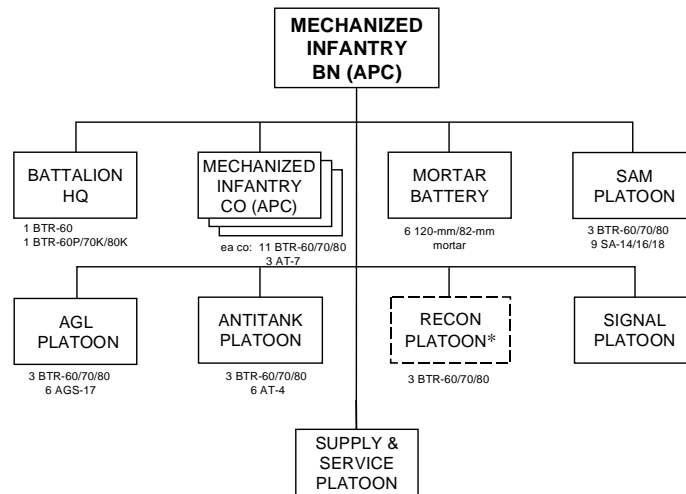
** Some squadrons may also have one or two Mi-8VKP airborne command post helicopters.

Airborne Brigade (IFV) (Div), Airborne Div**Airborne Infantry Brigade (Sep)**

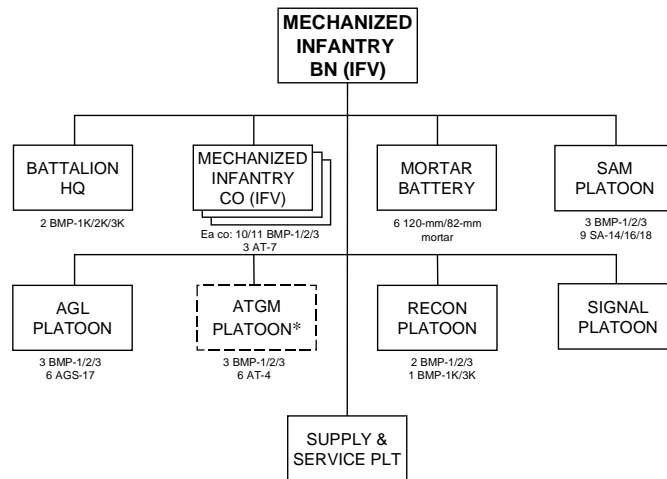
- Air transport support units required for deployment may be allocated to the brigade from military transport aviation assets. Either transport aircraft or heavy-lift helicopters could air-land the brigade or insert the airborne infantry battalions by parachute.

BATTALION

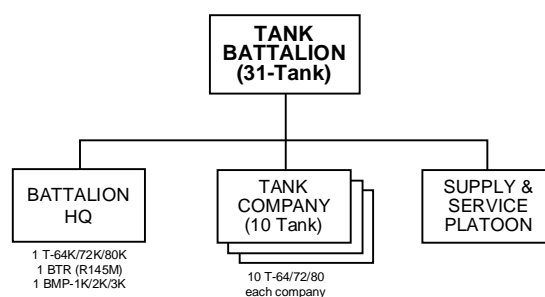
There are two basic types of mechanized infantry battalion: those equipped with tracked infantry vehicles (IFVs) and those equipped with wheeled armored personnel carriers (APCs). Tank battalions of divisional tank brigades have a standard 31-tank structure. In a divisional mechanized infantry brigade, the tank battalion may have the 31-tank structure or a variant with 40 tanks. Tank battalions in separate mechanized infantry and tank brigades typically have a 51-tank structure, but 31- and 41-tank variants are possible. There is also a 44-tank variant that may occur in either divisional or separate mechanized infantry and tank brigades or as separate tank battalion in a motorized infantry division.

Mechanized Infantry Battalion (APC)

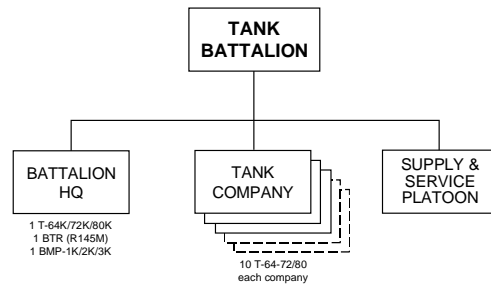
Some APC-equipped mechanized infantry battalions do not have a reconnaissance platoon.

Mechanized Infantry Battalion (IFV)

Many IFV-equipped mechanized infantry battalions do not have an ATGM platoon. Therefore, the battalion's equipment totals shown here do not include that platoon. The ATGM platoon is more likely to appear when the battalion is part of a separate brigade.

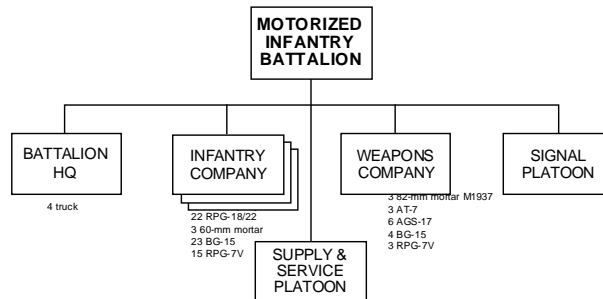
Tank Battalion (31-Tank Standard), MIBR and TBR

Tank Battalion, MIBR (Sep) and TBR (Sep)



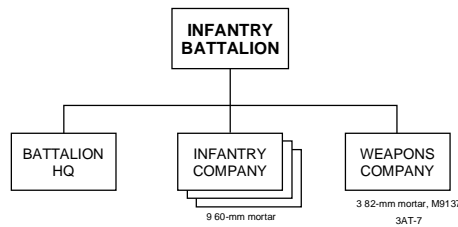
Motorized Infantry Battalion, Mtzd Inf Bde (Sep and Div)

A motorized infantry battalion does not have organic transport assets to move its infantry companies and weapons company. Rather, it relies on the brigade-level motor transport battalion to provide trucks for movement over longer distances. Movement of all



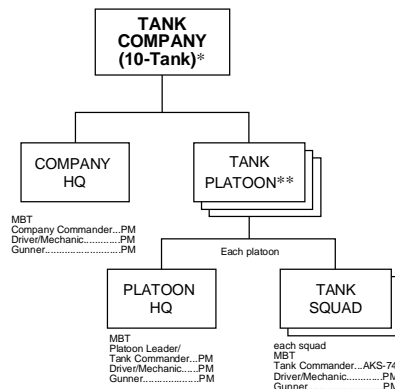
3 infantry companies requires a total of 18 medium trucks. A weapons company requires 3 utility trucks and 12 light trucks. Some motorized infantry battalions may have a mortar battery with nine 82-mm mortars instead of a mortar platoon in the weapons company. In that case, there would probably be no 60-mm mortars in the infantry companies.

Infantry Battalion, Inf Bde (Sep, Div, and Militia) or MD



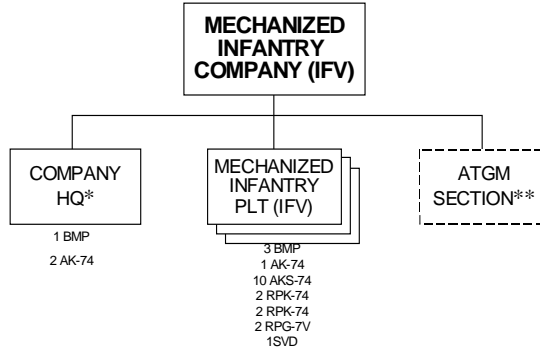
Some infantry battalions may have a mortar battery with nine 82-mm mortars instead of a mortar platoon in the weapons company. In that case, there would probably be no 60-mm mortars in the infantry companies.

Tank Company (10-Tank Standard), TBN, MIBR (IFV or APC) & TBR

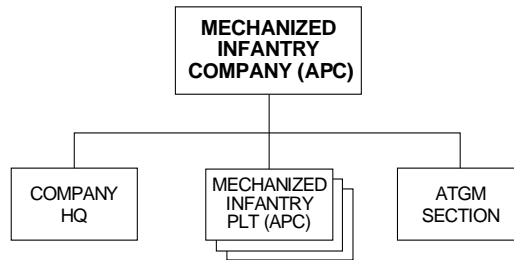


In companies equipped with tanked (such as T-55/62) without automatic loaders, each tank has one additional crewmember, a loader. The loader carries a PM pistol. One tank in each platoon mounts a mine-clearing plow.

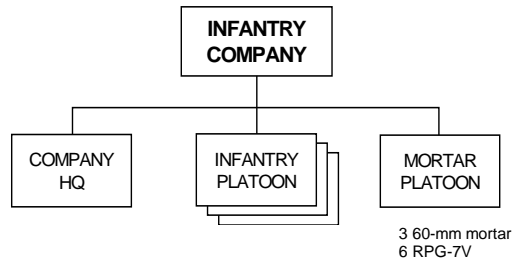
Mechanized Infantry Company (IFV), MIBN (IFV)



Mechanized Infantry Company (APC), MIBN (APC)



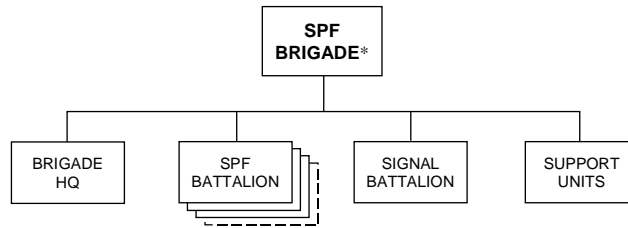
Infantry Company, Mtzd Inf Bn and Inf Bn



System	MIC (BTR)	MIC (BMP)	TC	IC
MBT T-64/72/80	0	0	10	0
BMP-1/2/3	0	10/11	0	0
BTR-60/70/80	11	0	0	0
AK-74	53	50	0	82
AKS-74	0	0	6	0
RPK-74	9	9	0	18
SVD	3	3	0	3
RPG-7V	9	9	0	15
RPG-18/22	0	0	0	22
AT-7	3	0/3	0	0

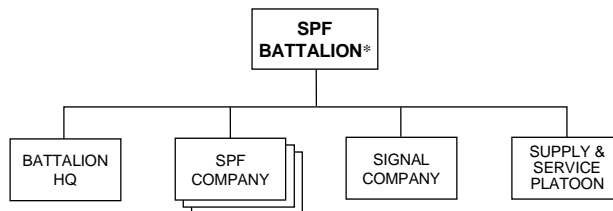
Special-Purpose Forces

Special-Purpose Forces Brigade, Army Group



* The SPF brigade structure is not fixed. This chart represents a typical brigade, which may deploy about 80 to 100 SPF teams. The number of teams deployed generally depends on the team size required for specific missions.

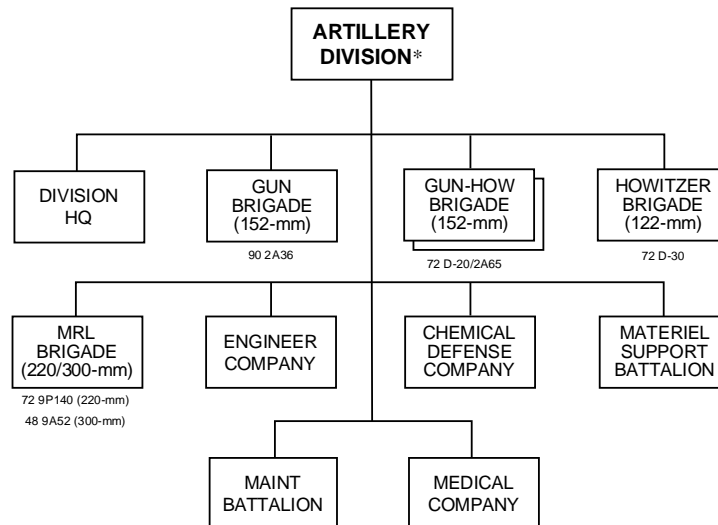
Special-Purpose Forces Battalion, Army or SPF Bde



* The battalion does not have a fixed structure. The size of a SPF company in an army-level battalion differs greatly from the company size in a battalion of an SPF brigade. The total number of teams an army-level SPF battalion can deploy varies from 9 to 15. However, an SPF battalion in an SPF brigade can deploy from 27 to 30 teams. The number of teams deployed generally depends on the team size required for specific missions.

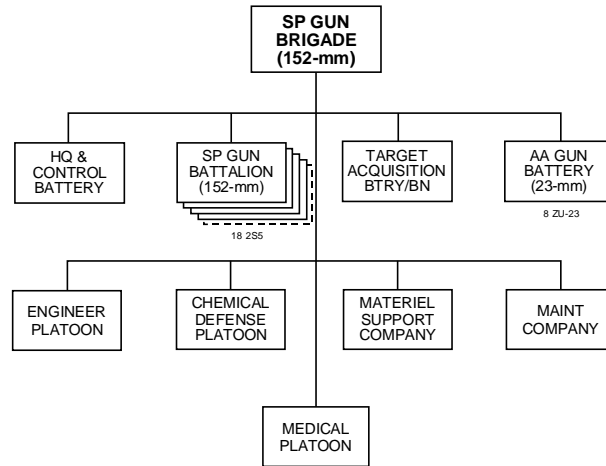
Artillery

Artillery Division, Army Group

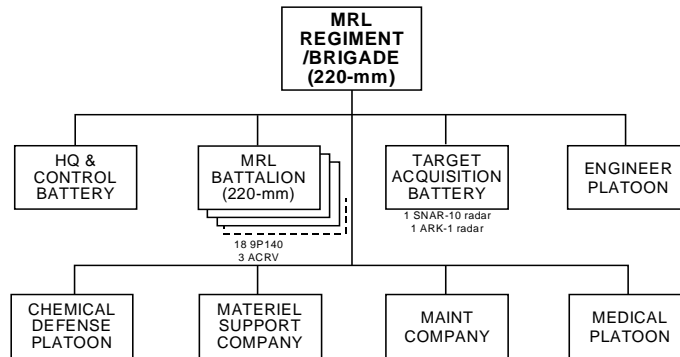


* In **most** artillery divisions, howitzer, gun-howitzer, and gun brigades consist of four 18-tube battalions and a target acquisition battery. In other artillery divisions, these brigades could have four 24-tube battalions.

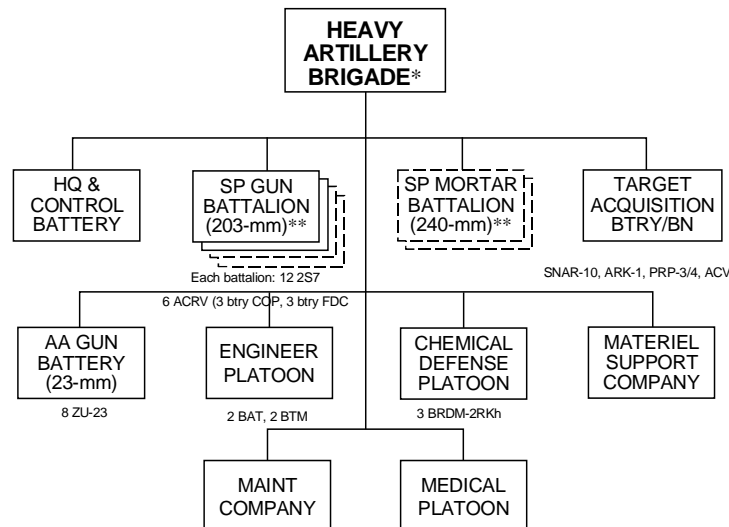
152-mm SP Gun Brigade (4x18-Tube Battalion) Army, (5x18-Tube Battalion) Army Group



220-mm Multiple Rocket Launcher Regiment/Brigade, at Army or Corps or Army Group



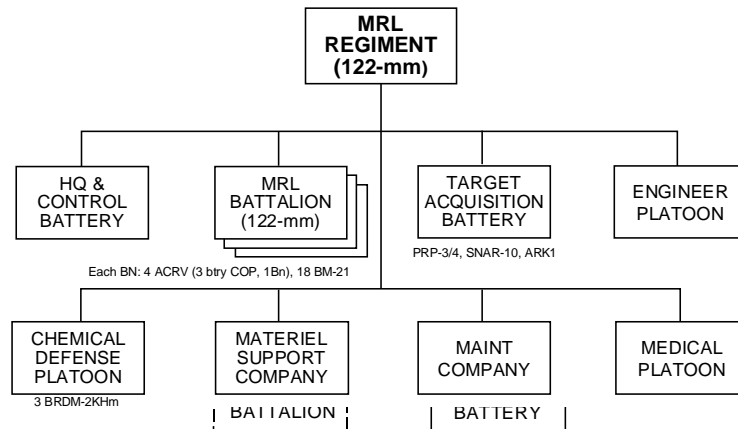
Heavy Artillery Brigade, Army Group



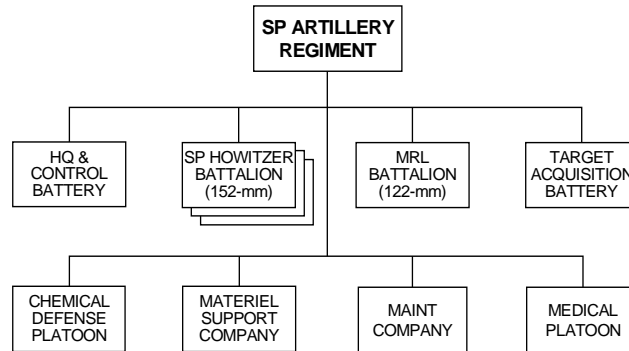
* This brigade is not part of the army group's artillery division. It is not actually organic to the army group. However, higher command may allocate a heavy artillery brigade to an army group.

** The heavy artillery brigade always has four battalions of heavy artillery. It may have all four of its battalions equipped with 203-mm SP guns. Alternatively, it may have two battalions of SP guns and two battalions of 240-mm SP mortars.

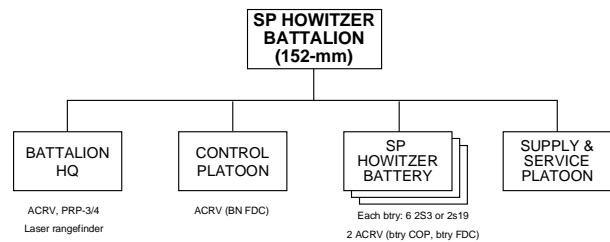
122-mm Multiple Rocket Launcher Regiment, Army or Corps



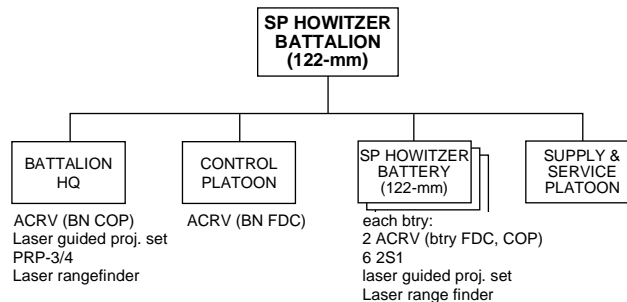
Self-Propelled Artillery Regiment, MID and TD



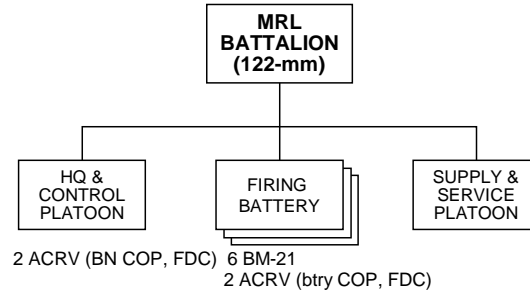
152-mm SP Howitzer Bn, SP Arty Regt or MIBR (Sep) & TBR (Sep)



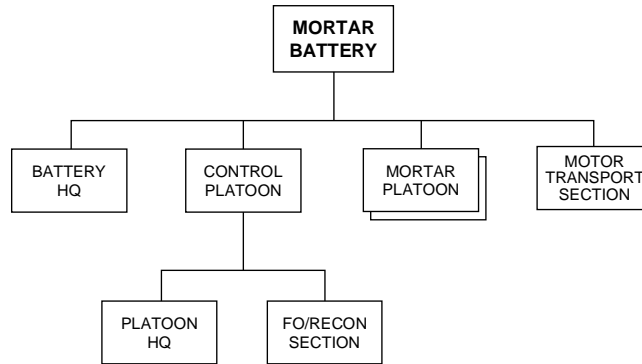
122-mm Self-Propelled Howitzer Battalion, MIBR and TBR



122-mm MRL Bn, SP Arty Regt or 122-mm MRL Regt or Corps

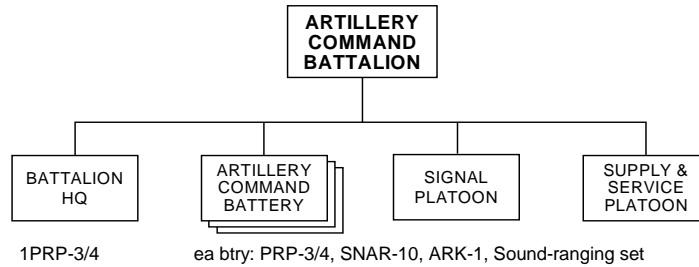


Mortar Battery, MIBN (IFV or APC)

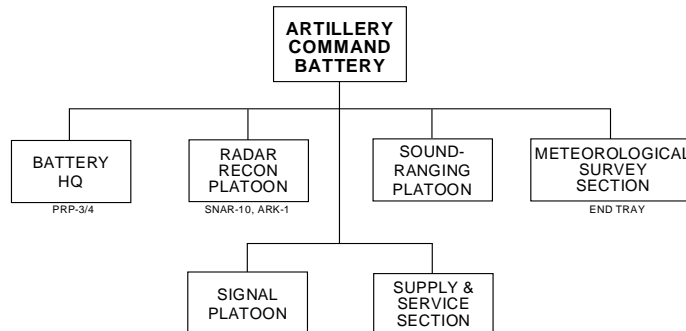


Each mortar battery has 6 120-mm 2S12/M1943 or 6 82-mm 2B9 automatic mortars.

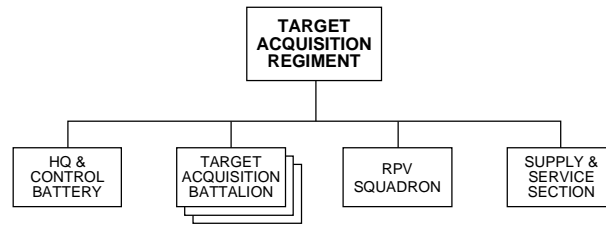
Artillery Command Battalion, Army or Corps



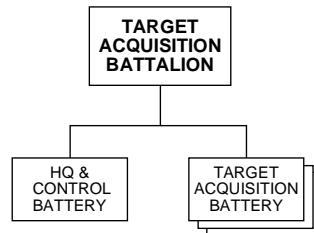
Artillery Command Battery, MID and TD or Arty Command Bn



Target Acquisition Regiment, Army or Army Group

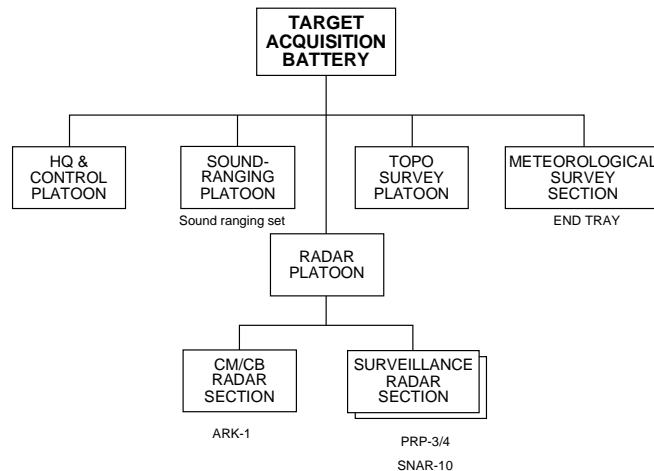


Target Acquisition Battalion, 152-mm SP Gun Bde or 152-mm Gun Bde or 152-mm Gun-How Bde or 152-mm Arty Bde or 122-mm How Bde or Heavy Arty Bde or MRL Bde or Corps or Tgt Acq Regt



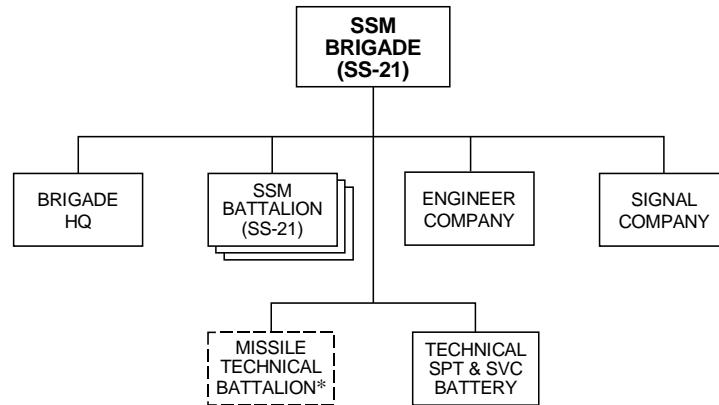
Each battalion also has 2 ACV BTR (R-145BM), and BRDM-2RKhM

Target Acquisition Battery, 152-mm SP Gun Bde or 152-mm Gun Bde or 152-mm Gun-How Bde or 152-mm Arty Bde or 122-mm How Bde or Heavy Arty Bde or MRL Regt or MRL Bde or Tgt Acq Bn



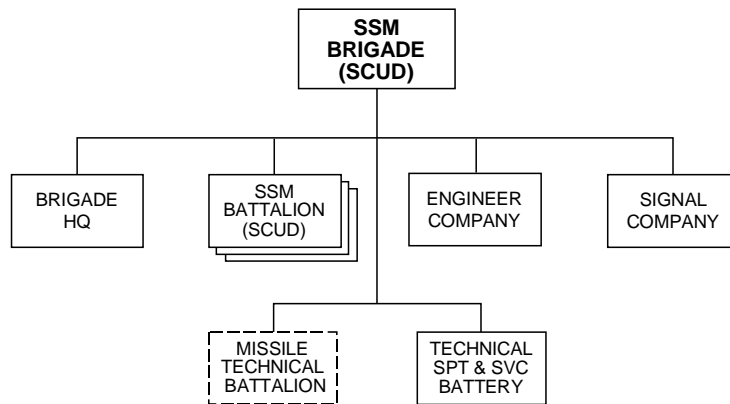
Each battery also has 1 ACV BTR (R-145BM).

SSM Brigade (SS-21), Army or Corps



18 TELs per brigade

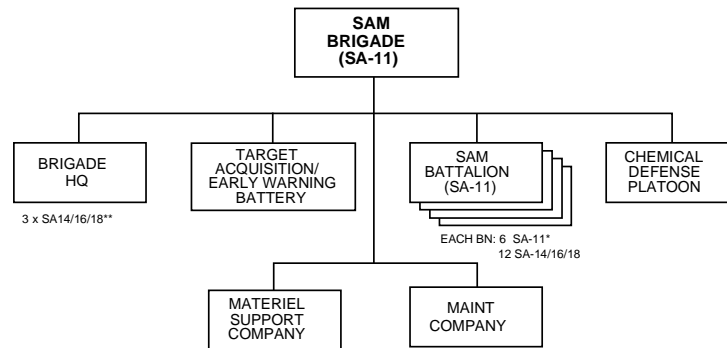
SSM Brigade (SCUD), Army or Corps



12 TELs per brigade.

Air Defense

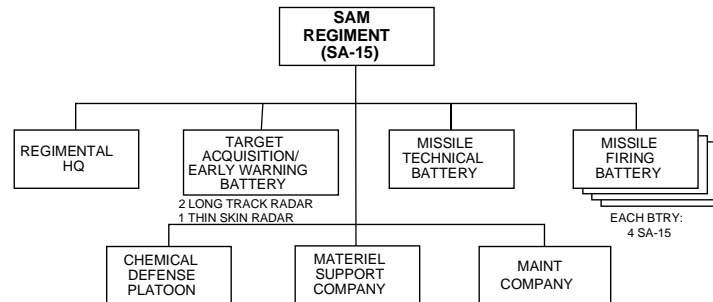
SAM Brigade (SA-11), Army or Corps



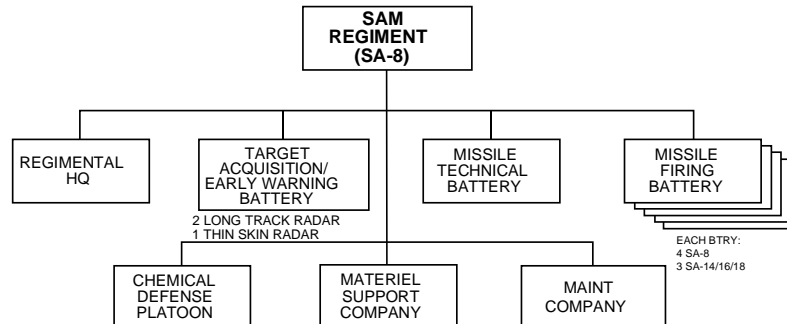
* This system includes the FIRE DOME fire control radar.

**The brigade HQ may have an AA gun section with 2 ZU-23mm AA guns instead of shoulder fired SAMs.

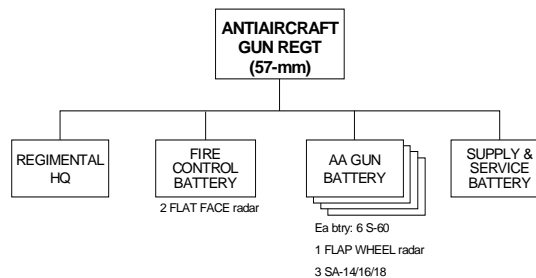
SAM Regiment (SA-15), MID and TD



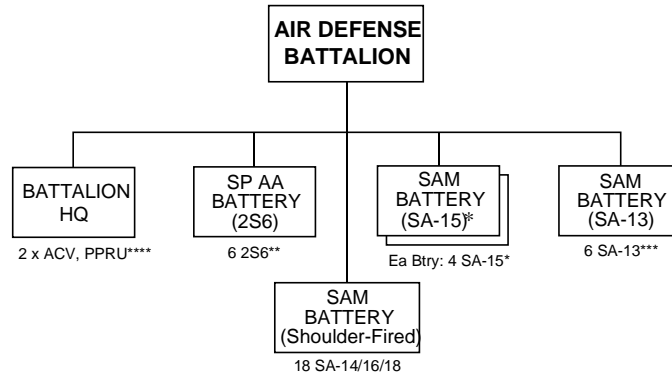
SAM Regiment (SA-8), MID and TD



57-mm Antiaircraft Gun Regiment, MID and TD



Air Defense Battalion, MIBR (Sep) and TBR (Sep)



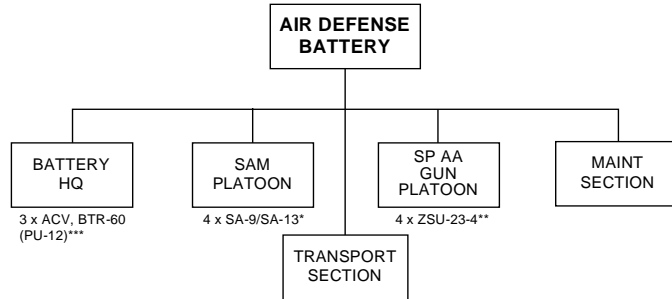
*In some separate mechanized infantry brigades, the air defense battalion may have SA-8-equipped SAM batteries rather than the SA-15 batteries shown here. The SA-15 includes the SCRUM HALF fire control/TA radar.

**This system includes SA-19/GRISON SAM launchers and HOT SHOT target acquisition and fire control radars.

***This system includes the DOG EAR target acquisition and fire control radar.

****This system includes ranging radar.

Air Defense Battery, MIBR (Div) and TBR (Div)

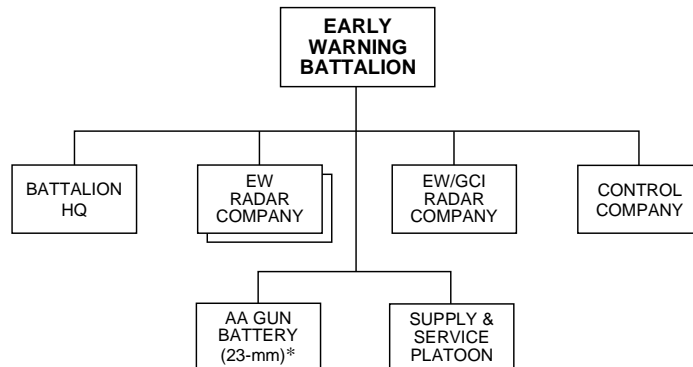


*The SA-13 system includes a ranging radar.

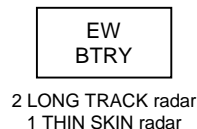
**This system includes the GUN DISH fire control radar. In lieu of the ZSU-23-4, some batteries may have the 30-mm SP AA system 2S6, which includes SA-19/GRISON SAM launchers and HOT SHOT target acquisition and fire control radars.

***If the battery has tracked SA-13 and/or 2S6 systems, the ACV may be the tracked PPRU, which includes DOG EAR TA radar.

Early Warning Battalion, Army, Army Group

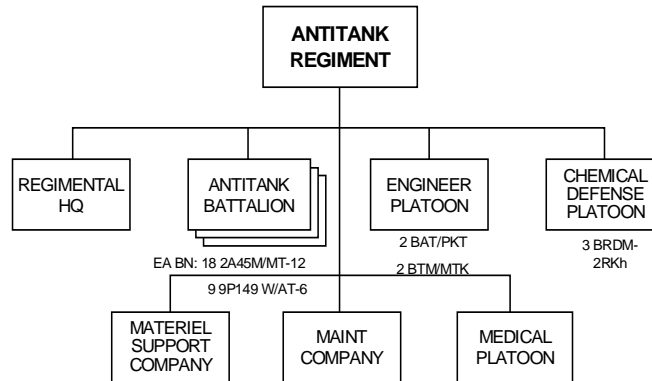


Early Warning Battery, SAM Bde, Army, or Air Defense Regt, MID and TD

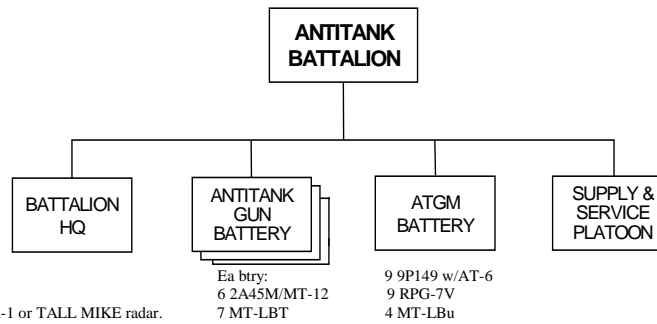


Antitank

Antitank Regiment, Mechanized Army

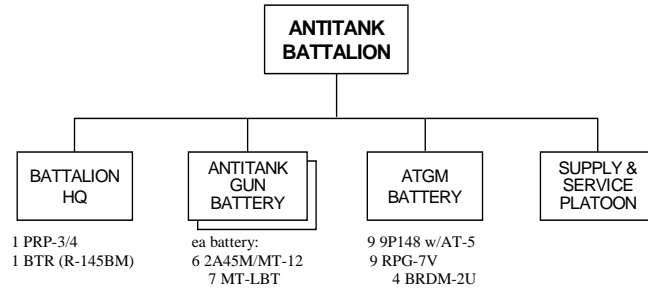


Antitank Battalion, AT Regt, Mechanized Army, or AT Bde



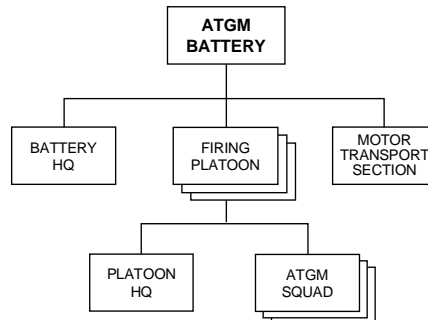
Each battery and Bn HQ has a PSNR-1 or TALL MIKE radar.

Antitank Battalion, MID



Each battery has a PSNR-1 or TALL MIKE radar.

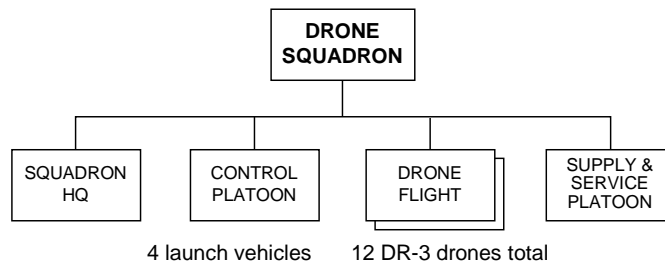
ATGM Battery, MIBR (Div) or AT Bn, MIBR (Div) or MID



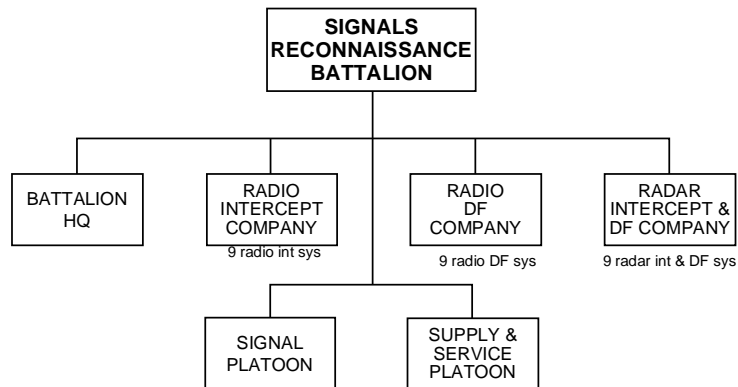
The ATGM battery has 9 9P148 with AT-5 and 1 PSNR-1/TALL MIKE radar.

Reconnaissance and Electronic Combat

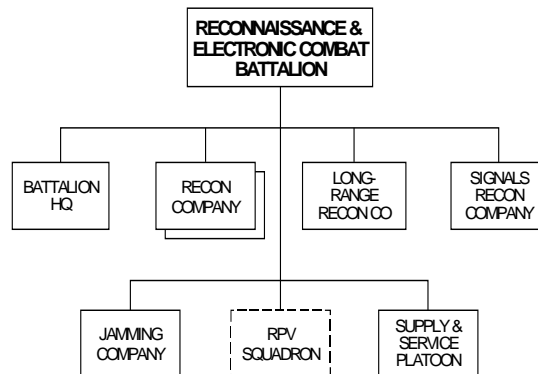
Drone Squadron, Army or Corps



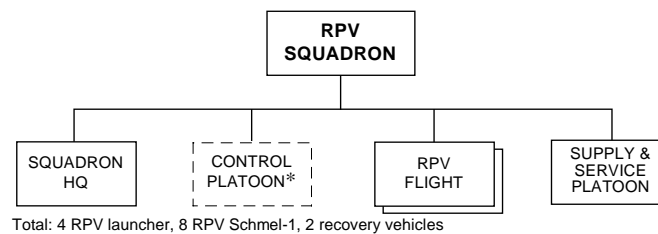
Signals Reconnaissance Battalion, Army or Corps or Army Group or Signals Recon Regt



Reconnaissance and Electronic Combat Battalion, MID and TD

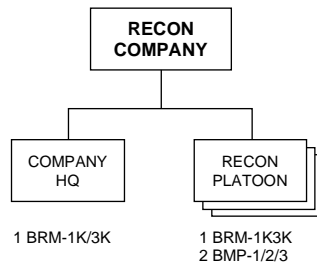


RPV Squadron, Recon and EC Bn or Tgt Acq Regt

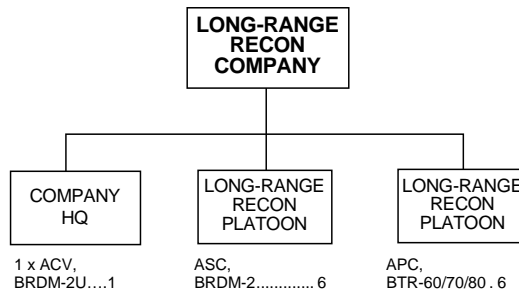


The launch vehicle for the Shmel-1 also serves as the ground control station. The employment of an alternate short-range RPV may require the use of an additional control element and vehicles.

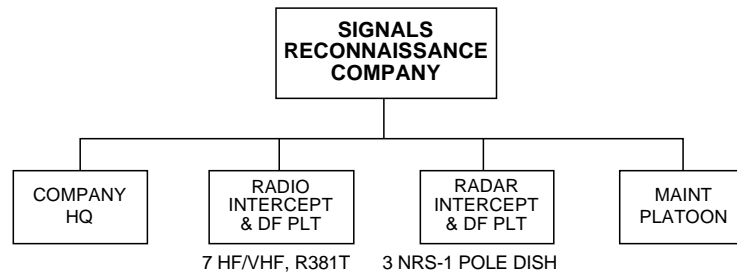
Reconnaissance Company, Recon and EC Bn



Long-Range Reconnaissance Company, Recon and EC Bn

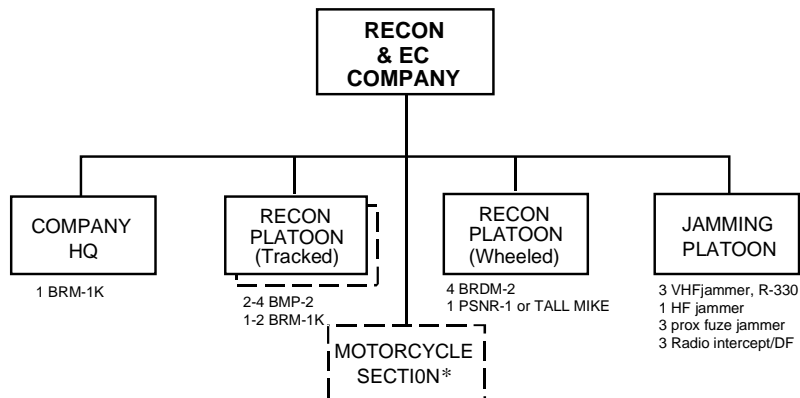


Signals Reconnaissance Company, Recon and EC Bn

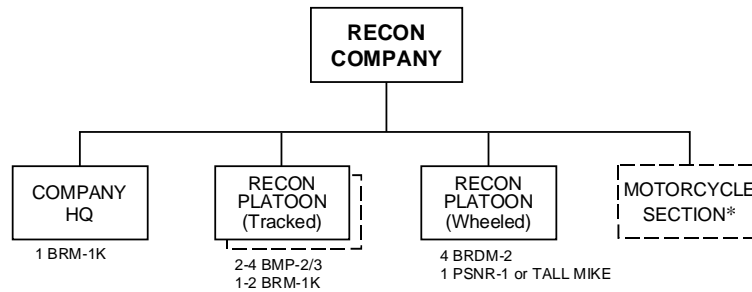


Some units may have older van-mounted radio intercept and DF systems rather than the R-381T on modified MT-LBu APC chassis.

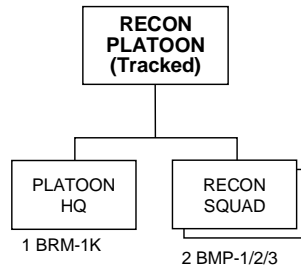
Reconnaissance and Electronic Combat Co, MIBR (Sep) and TBR (Sep)



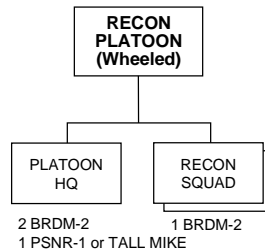
Reconnaissance Company, MIBR (Div) and TBR (Div)



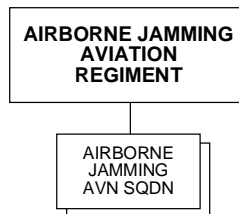
Reconnaissance Platoon (Tracked), Recon Co or Recon and EC Co



Recon Plt (Wheeled), Recon Co, MIBR and TBR, or Recon and EC Co

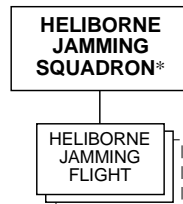


Airborne Jamming Aviation Regiment, Air Army



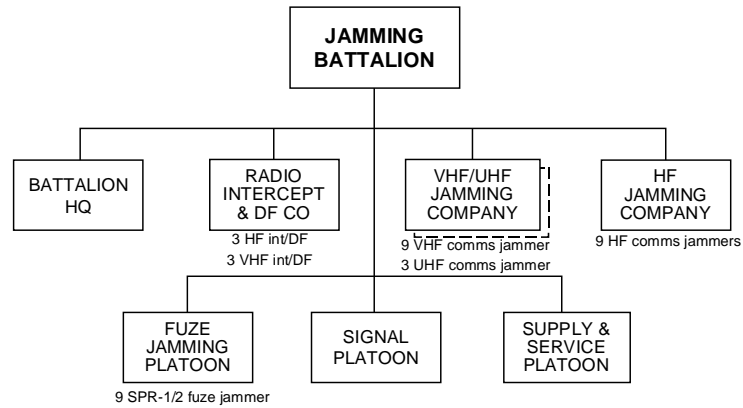
This regiment may have a squadron of Su-24 FENCER jamming variants and a squadron of Yak-28 BREWER E jamming variants. Each squadron normally has 12 aircraft.

Heliborne Jamming Squadron, Air Army

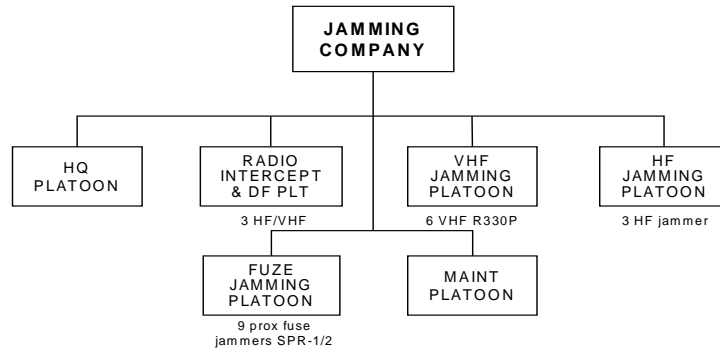


* This squadron may have one or two Mi-8T/HIP C/E or Mi-8MT(Mi-17)/HIP H medium helicopters and 14 to 21 jamming variants of the types Mi-8SMV/HIP J, or Mi-8PPA/HIP K, or Mi-8MT(Mi-17P)/HIP H.

Jamming Battalion, Army or Corps or Army Group or Jamming Regt

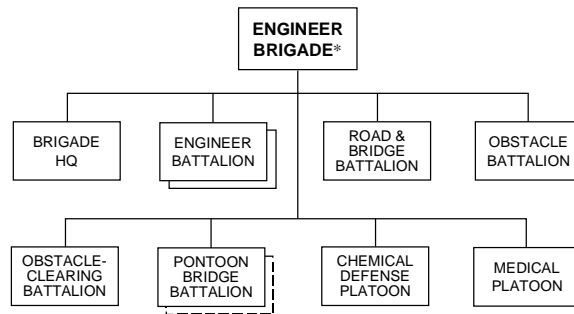


Jamming Company, Recon and EC Bn



Engineer

Engineer Brigade, Army or Corps or Army Group



- Some engineer brigades may have a second pontoon bridge battalion. However, the equipment totals here include only one such battalion. In addition to the standard types of battalion shown here, some engineer brigades at army or army group levels could include one or more of the following types: an engineer construction battalion, a fabrication battalion, a water supply battalion, and possibly a camouflage, concealment, and deception battalion.
- Some units may have PMR towed minelayers instead of the GMZ armored tracked minelayers.
-

Engineer Brigade Principal Items of Equipment

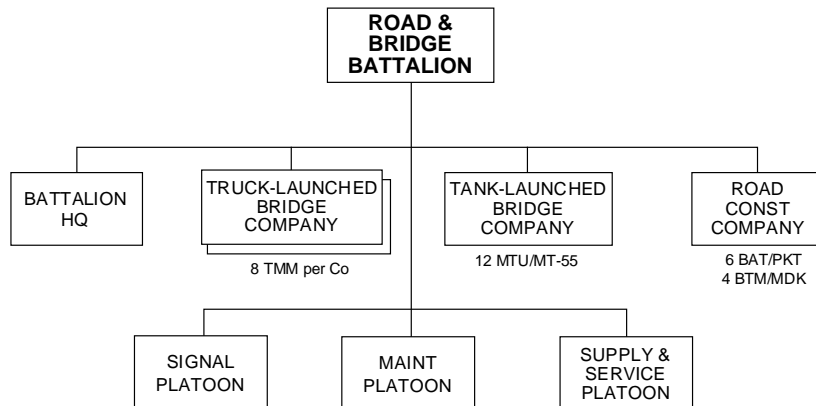
ARMORED VEHICLES		8	Bridge, PMP Ramp**
12	APC, BTR-60/70/80	24	Powerboat**
5	ACV, BRDM-2U	32	Bridge, Truck-Launched
2	ACV, BTR (R-145BM)	20	Bridge, Tank-Launched
3	Chem Recon Veh, BRDM-2RKh/RKhM	24	Tracked Amphibian, K-61/PTS
12	Armored Recovery Vehicle	12	Tracked Ferry, GSP/PMM-2 ***
WEAPONS		20	Assault Boat
40/42	ATRL, RPG-22/26*	12	Trailer, Amphibious, PKP
36	SAM, Shoulder-Fired	25	Route-Clearing Vehicle, BAT/PKT
ENGINEER EQUIPMENT		4	Truck, Sawmill
13	Mineclearer, MTK/MTK-2	4	Trailer, Saw
15	Mine Detector, DIM	4	Truck, Water Purification
33	Minelayer, PMR/GMZ	4	Concrete Mixer
0/6	Minelayer, UMZ*	7	Tractor
7	Armored Engineer Tractor, IMR	4	Piledriver Set, KMS
15	Engineer Recon Vehicle, IRM	21	Ditching Machine, BTM/MDK
64	Bridge, PMP Center**	9	Grader

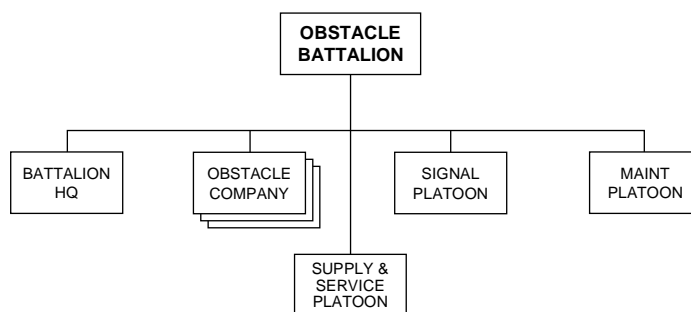
* Totals listed with multiple numbers (such as 16/18) reflect the numbers of that particular piece of equipment when engineer battalions do or do not have the UMZ minelayer, respectively.

** The PMM-2 amphibious bridge/ferry system may replace the PMP pontoon bridge. With the PMM-2, there is no need for powerboats.

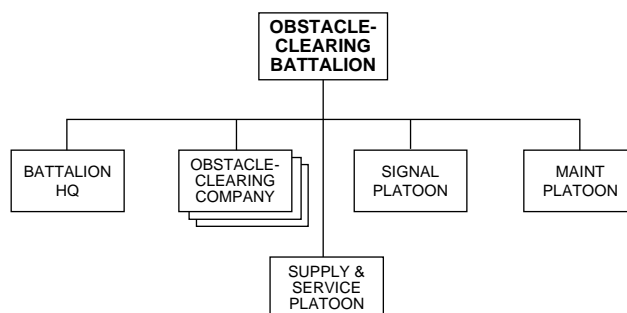
*** With the PMM-2, there are a total of 16 ferries rather than 12.

Road and Bridge Battalion, Engr Bde

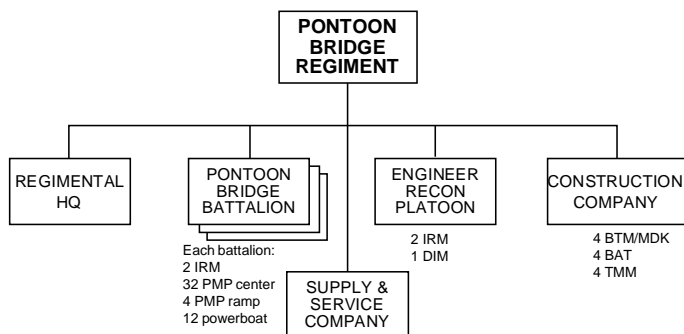
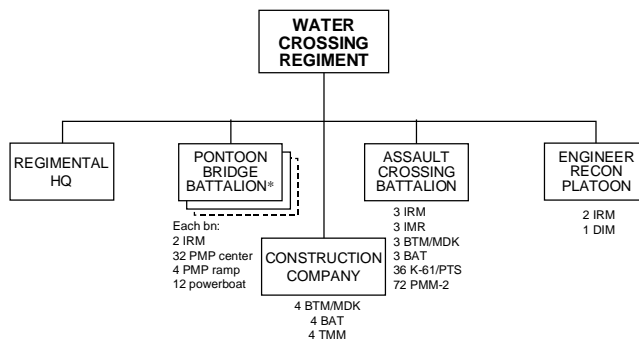


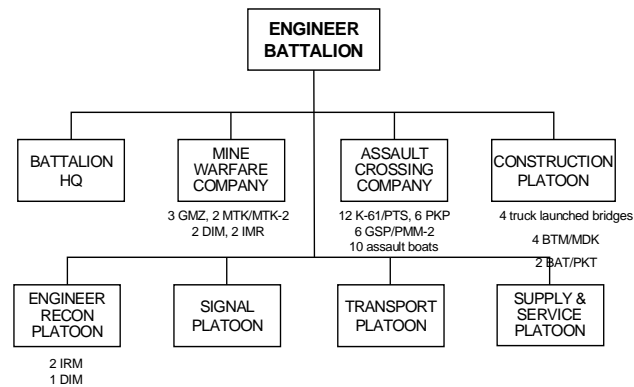
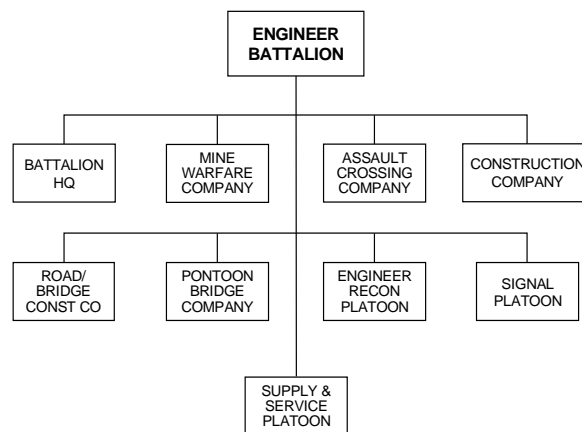
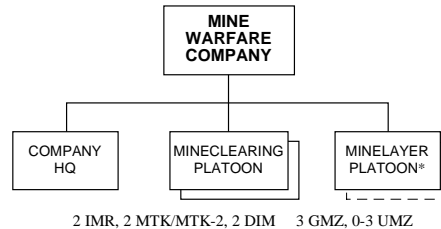
Obstacle Battalion, Engr Bde

Each Obstacle Company has 3 IRM, 9 PMR/GMZ minelayers, and 3 BTM/MDK.

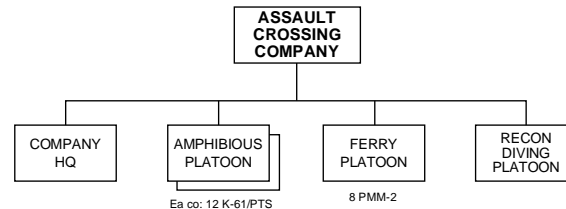
Obstacle-Clearing Battalion, Engr Bde

Each Obstacle-Clearing Company has an IMR, 3 DIM, 3 MTK/MTK-2 and a BAT.

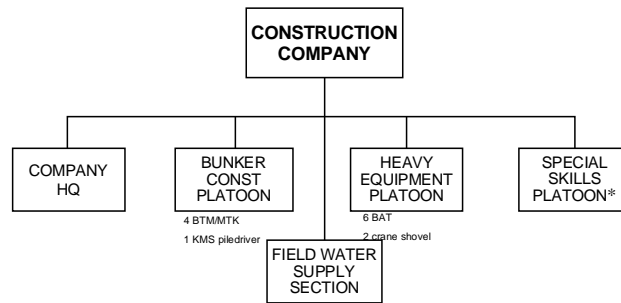
Pontoon Bridge Regiment, Army or Army Group**Water Crossing Regiment, Corps**

Engineer Battalion, MIBR (Sep)**Engineer Battalion, MID and TD or Engr Bde or Corps****Mine Warfare Company, Engr Bn**

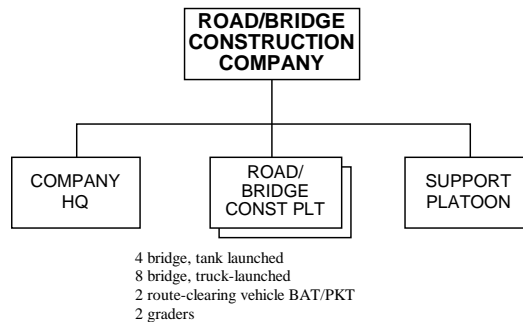
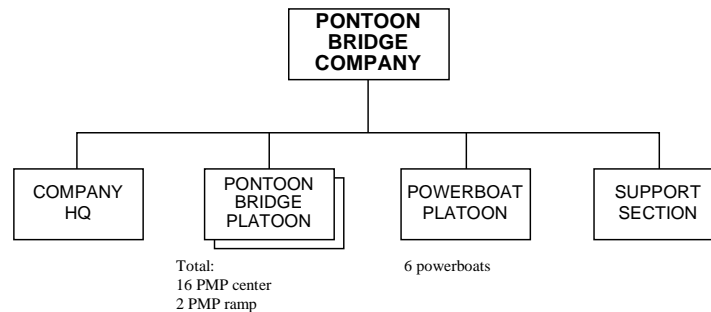
In the engineer battalion of a mechanized infantry or tank division, this company may have a second minelayer platoon equipped with the truck-mounted UMZ. This is in addition to the GMZ-equipped minelayer platoon already present in this company in a separate mechanized or tank brigade and at division level.

Assault Crossing Company, Engr Bn

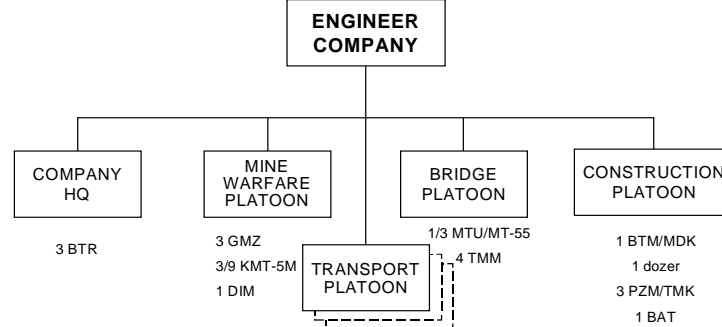
- * Two GSP heavy amphibious ferry vehicles make up one ferry. Thus the assault crossing company actually has 12 half-ferries. With the newer PMM-2 system, 8 PMM-2 vehicles can form 8 ferries.

Construction Company, Engr Bn

* The special skills platoon contains engineers that perform work such as electrical, plumbing, and carpentry.

Road/Bridge Construction Company, Engr Bn**Pontoon Bridge Company, Engr Bn or Pontoon Bridge Bn**

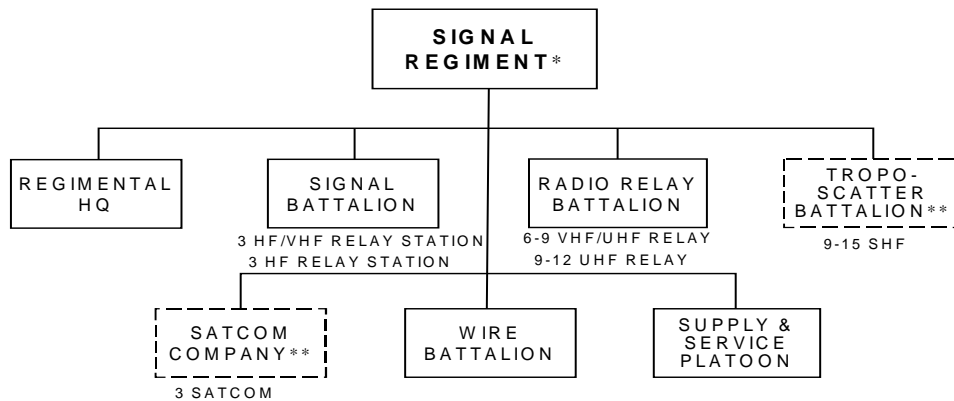
A full PMP bridge set consists of 32 center and 4 ramp sections. The half-set can make a bridge (119 m of 60-t or 191 m of 20-t) or several rafts. The PPM-2 amphibious bridge/ferry system may replace the PMP pontoon bridge.

Engineer Company, MIBR (Div) and TBR (Div)

Totals listed with multiple numbers (such as 1/3) reflect the numbers of the piece of equipment in the engineer company of a mechanized infantry brigade of tank brigade, respectively. Some units may have PMR towed minelayers instead of GMZ armored tracked minelayers. Trucks normally tow PMR minelayers.

Signal

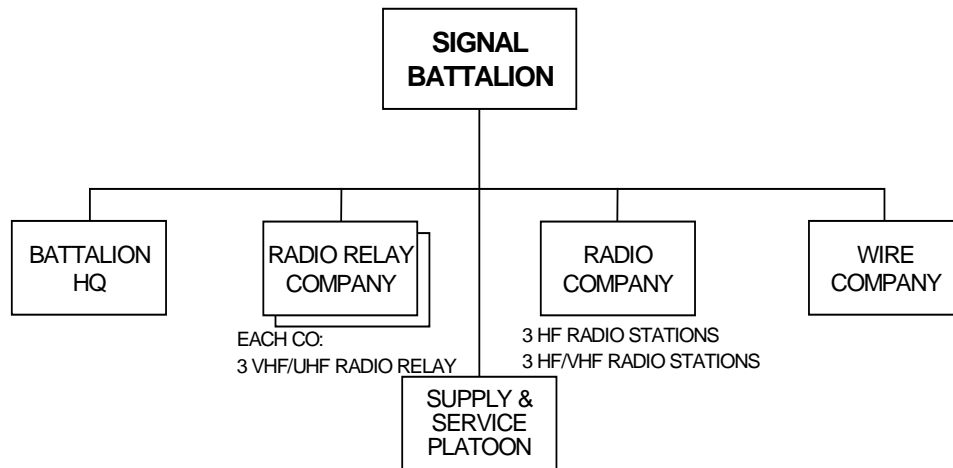
Signal Regiment, Army or Corps or Army Group _____



*An army, corps, or army group headquarters normally task-organizes the assets of the signal regiment's subordinate units to support its formation of forward, main, alternate, and rear command and control posts (CPs).

**The troposcatter battalion and satellite communications (SATCOM) company are organic only in a signal regiment at army group level. At army or corps level, these units or stations from them are present only if allocated from the parent army group.

Signal Battalion, Army or Corps or Army Group or Signal Regt or Signal Bde _____



Signal Company, MIBR (IFV or APC) and TBR, MID and TD _____

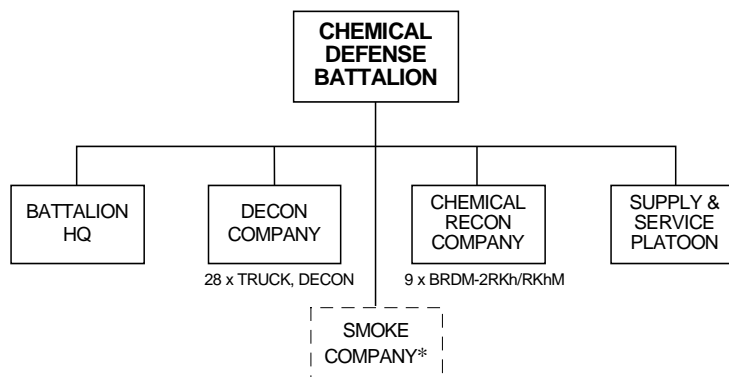


5*/0** ACV, BMP1KSh
3*/8** ACV, BTR (R-145BM)
5 Truck, Utility
2 Radio Relay, VHF/UHF

- MIBR (IFV) and TBR
- ** MIBR (APC)

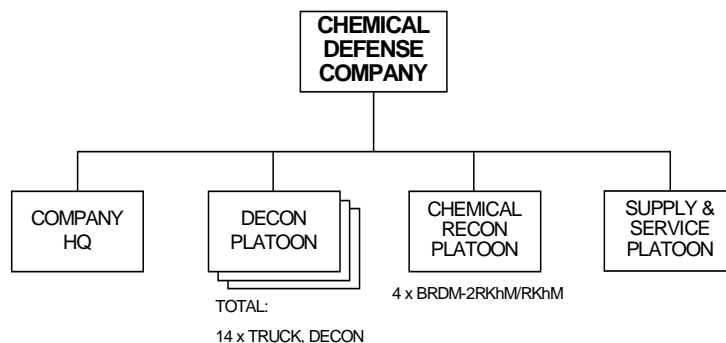
Chemical

Chemical Defense Battalion, Army Group, Corps, MID and TD

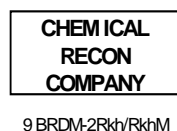


* The smoke company will not be present if the division's parent army or corps has a smoke battalion.

Chemical Defense Company, MIBR (Ind/Sep)

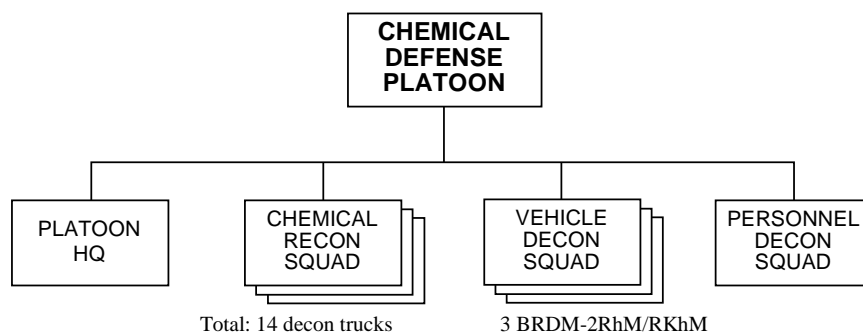


Chem Recon Co, Chem Defense Bn, MID and TD or Army Corps or Army



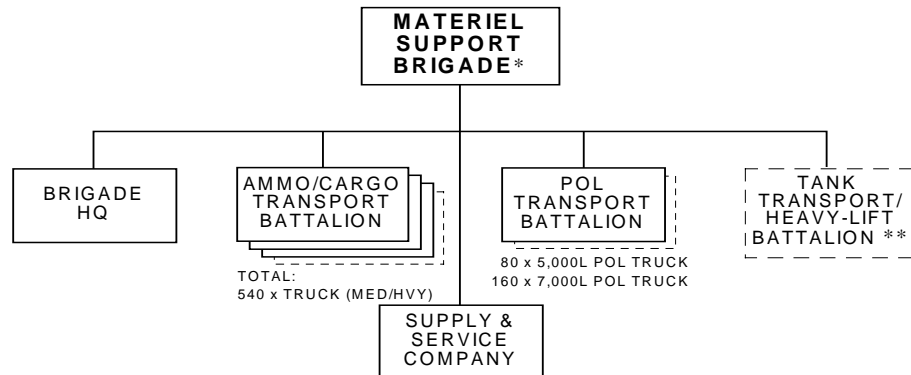
9 BRDM-2RKh/RKhM

Chemical Defense Platoon, MIBR and TBR or Arty Regiment or SAM Regiment, MID and TD



Logistics

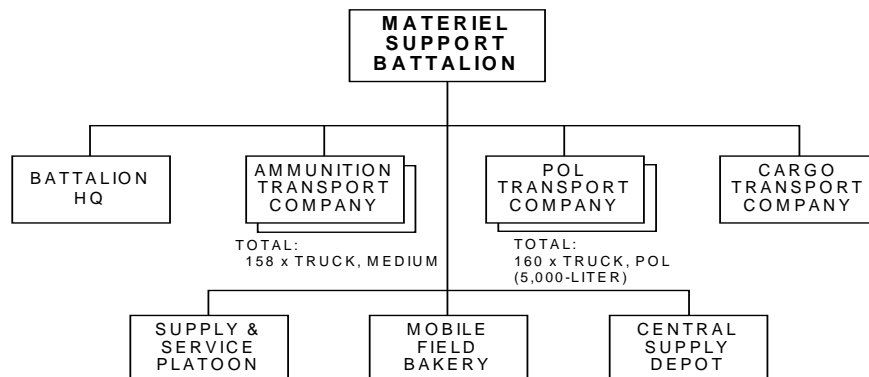
Materiel Support Brigade, Army or Corps or Army Group



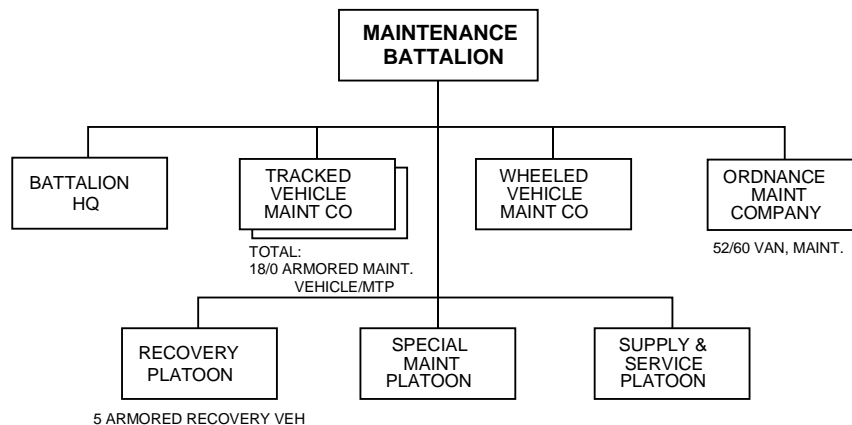
* The numbers of ammunition/cargo transport and POL transport battalions can vary depending on the number of subordinate armies, corps, divisions, and/or separate brigades supported. The equipment totals here reflect three possible variants of the brigade structure. Variant 1 shows the smallest possible organization, with three ammunition/cargo transport battalions and one POL transport battalion. Variant 2 shows a medium-strength brigade with three ammunition/cargo transport battalions and two POL transport battalions. Variant 3 shows the largest possible brigade structure, with four ammunition/cargo transport battalions and two POL transport battalions.

** The General Staff may allocate an entire tank transport/heavy-lift regiment to an army group. Such a regiment has three or four battalions equipped with heavy equipment transporters (HETs). The army group may allocate the entire regiment to a subordinate army when the mission dictates. Alternatively, the army group may allocate a tank transport/heavy-lift battalion to a subordinate army or corps. In the latter case, the army or corps normally attaches the battalion to its organic materiel support brigade.

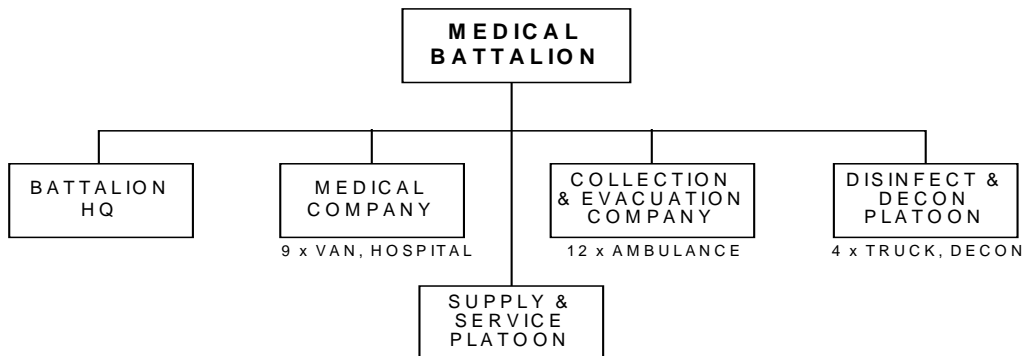
Materiel Support Battalion, MID and TD or MIBR (Sep) and TBR (Sep)



Maintenance Battalion, MID and TD or MIBR (Sep) and TBR (Sep) or Corps or Army



Medical Battalion, MID and TD or MIBR (Sep) and TBR (Sep) or Corps _____



Chapter 3: Weapons and Equipment



9-mm PM Pistol



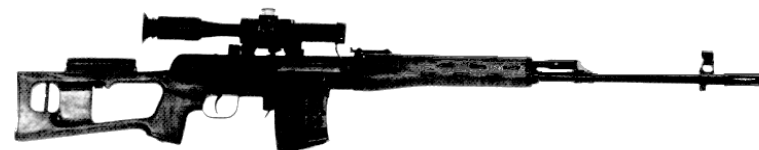
5.45-mm AK-74 Assault rifle



5.45-mm RPK-74 Light MG

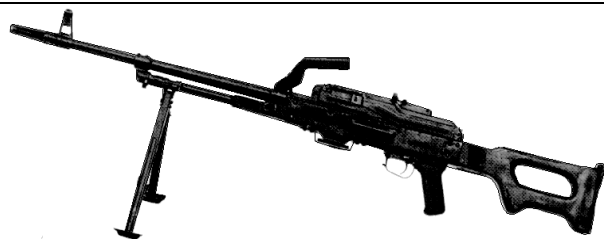


5.45-mm AKS-74U Shortened assault rifle



7.62-mm SVD Sniper rifle

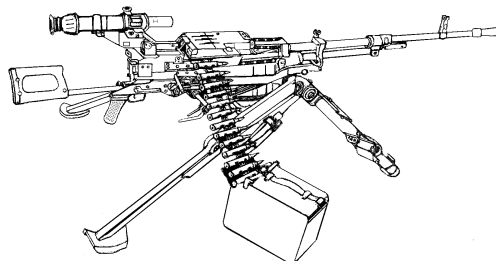
Small Arms	9-mm PM pistol	5.45-mm AK-74 assault rifle	5.45-mm RPK-74 light MG	5.45-mm AKS-74U (AKR) Shortened Assault Rifle	7.62-mm SVD Sniper Rifle
fire mode	semiautomatic	Selective semi- or fully automatic	Selective semi- or fully automatic	Selective semi- or fully automatic	semiautomatic
rate of fire/practical/cyclic (rpm)	35	100/600	150/600	150/600	30
combat load	16 (two magazines)	300	300		40
ammunition type	9x18-mm Ball	5.45x39-mm Ball Tracer Incendiary-T Armor-piercing	5.45x39-mm Ball Tracer Incendiary-T Armor-piercing	5.45x39-mm Ball Tracer Incendiary-T Armor-piercing	7.62x54R-mm Ball 7.62x54R-mm Heavy ball Tracer Sniper bullet Enhanced penetration Armor-piercing-T
range, effective/max aimed (m)	25/25	500/800	800/1000	300/500	1300 w scope, 800 w/o /1300
weight, loaded/empty (kg)	0.73/0.81	3.95/3.4	5/4.6	3.0/2.7	4.5/4.3
length (mm)	160	937	1070	730, 490mm w/stock folded	1230
remarks	double-action	II night sight available	II night sight available	II night sight available	II night sight available



PKM General-Purpose MG



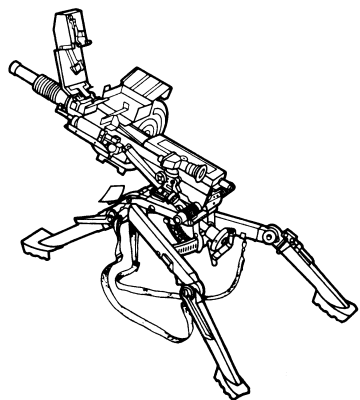
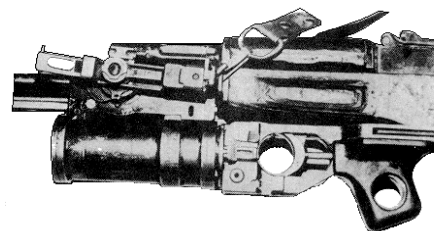
DShK/DSHKM Heavy Antiaircraft MG



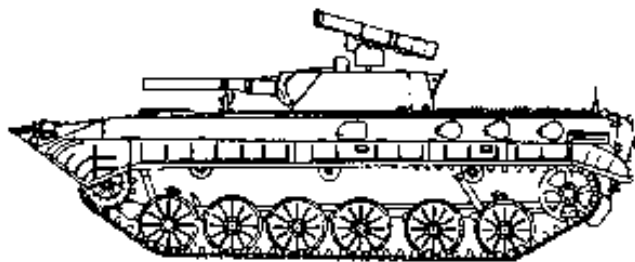
NSV Heavy MG

*Where two variants are noted / means ground/vehicle mounts.

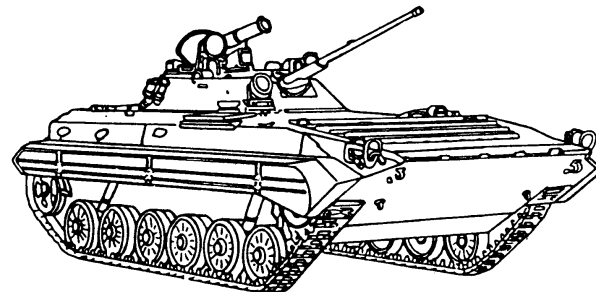
Machine Gun	RPK-74 Light	PKM/PKT GP	DShK Heavy	NSV / NSVT Heavy	KPVT Heavy
caliber (mm)	5.45	7.62	12.7	12.7	14.5
fire mode	selective	automatic	automatic	automatic	automatic
rate of fire, cyclic (rpm)	600	650	600	680-800	600
rate of fire, practical (rpm)	150	250	80-100	100/210	150
combat load	300, 2325 on BMD-3	2000 on vehicles	500 on tanks	300/300-500 on tanks	500 for vehicle main gun
feed	40-rnd box or 30-rnd magazine	joinable 25-rnd non-disintegrating belts	nondisintegrating metallic belt	belts in 50-rnd or 200-rnd boxes	varies
ammunition type	5.45x39-mm rimless Ball, Ball-T, Inc-T, AP	7.62x54R-mm, Ball, Heavy Ball Ball-T, API, API-T, Inc	12.7x108-mm API, API-T, IT, Duplex, APDS, HEI	12.7x108-mm API, API-T, IT, Ball tandem, APDS, HEI	14.7x114-mm API, API-T, HE-T, I-T
range, effective,	500	1000/1500-2000	1000/1500-2000	2000	2000
range, effective, AA			1000/1500, 1600 API	1000/1600	1400-2000
range, maximum aimed (m)	1000	2000	2000	2000	2000
armor penetration (mm)		8-mm @ 500m Ball	20-mm @ 500 m API 13.2-mm @ 1000 m	20-mm @ 500 m API 13.2-mm @ 1000 m	30-mm @ 500 m API-T 20-mm @ 1000 m
weight, loaded (kg)	5	13.3/18.66	157.5	43 w/tripod	
weight, unloaded (kg)	4.6	8.4/10.80	35.6	25 w/o tripod	49.1
length (mm)	1070	1160/1080	1560	1560/1900 w/tripod	2000
remarks	II night sights available	II night sights available	II night sights available	II night sights available	Version of KPV used on vehicles II night sights available

**AGS-17 Automatic Grenade Launcher****BG-15/GP-25/GP-30 Under-Barrel Grenade Launcher**

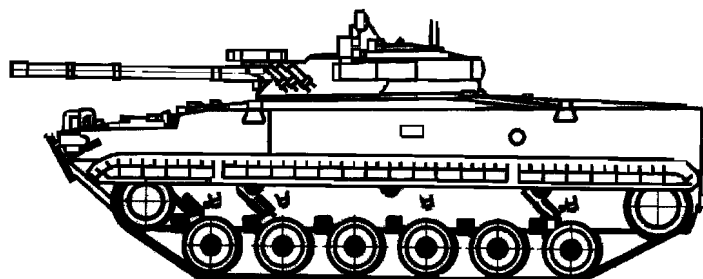
Grenade Launchers	AGS-17	BG-15/GP-25/GP-30
caliber (mm)	30	40
platform	tripod, vehicle or helicopter	Under-barrel grenade launcher.
fire mode	selective, semi- or fully automatic	single shot
rate of fire, practical/cyclic (rpm)	60-100/100-400	4-5
elevation (degrees)	+7 to 87	NA
traverse (degrees)	30	NA
range, effective/maximum aimed (m)	700 direct fire, 1200 indirect/1730	10-400/400
Combat load	87	10
feed	29-round belt in drum magazine	muzzle loaded
ammunition type	Frag-HE, Self destruct Frag-HE	Frag-HE, Bounding Frag-HE
weight, loaded/empty (kg)	45.05/30.71	1.79/1.5
length (mm)	1280	323
crew	3	1
remarks	15-m lethal area of burst	Bounding Frag-HE strikes the ground and "bounds" up 0.5-1.5 m before exploding.



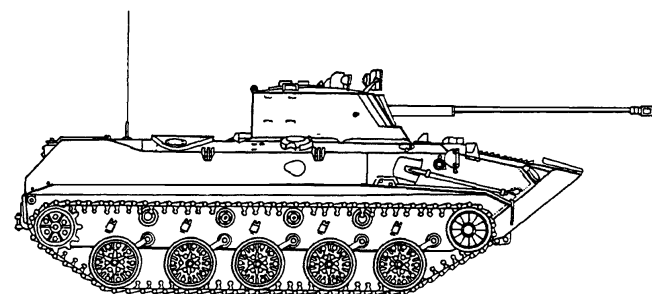
BMP-1P Infantry Fighting Vehicle



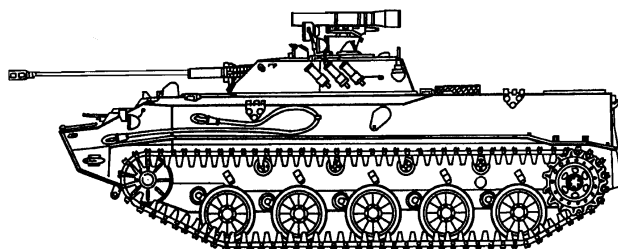
BMP-2 IFV



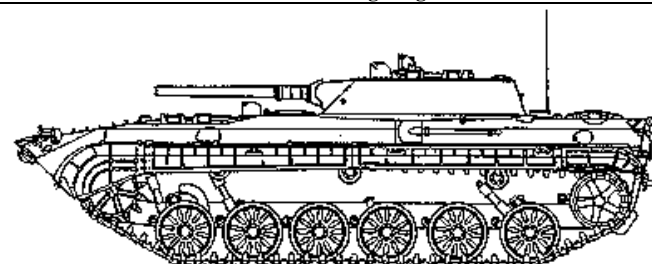
BMP-3 IFV



BMD-2 Airborne Fighting Vehicle

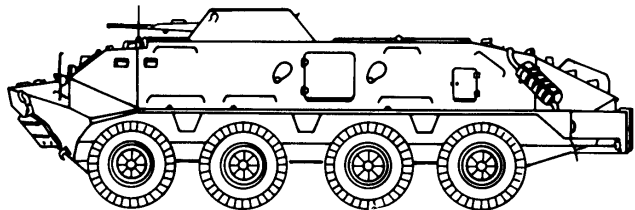


BMD-3 Airborne Fighting Vehicle

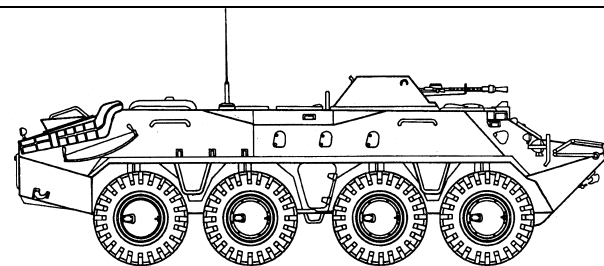


BRM-1/BRM-1K Armored Reconnaissance Command Vehicle

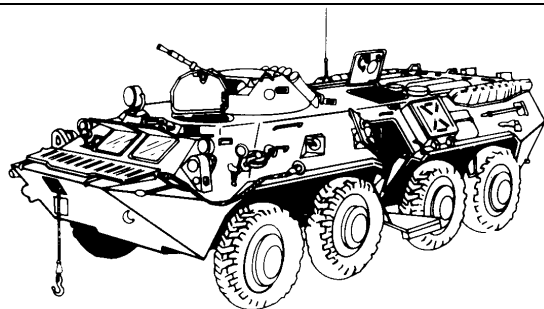
IFVs/Reconnaissance Vehicles	BMP-1P IFV	BMP-2 IFV	BMP-3 IFV	BMD-2 AFV	BMD-3 AFV	BRM-1/1K
main armament (caliber, model)	73-mm 2A28 gun	30-mm 2A42 gun	100-mm 2A70	30-mm 2A42 gun	30-mm 2A42 gun	73-mm 2A38 gun
stabilized gun	no	yes	yes			
elevation/traverse (degrees)	-4 to 33/360	-5 to 75/360	-5 to 60/360	-5 to 60/360	-5 to 75/360	-4 to 30/360
rate of fire (rpm) sustained/maximum	7-8	300/550	10/15	240/600	240/600	7-8
basic load	40	500	40	300	500	20
ammunition type	HEAT-FS, HE	Frag-HE, HEI-T, APDS-T	Frag-HE, HE	Frag-HE, HEI-T, APDS-T	AP-T,Frag-T,HEI	HEAT-FS, FE-Frag
range, max effective/max aimed (m)	800-1000/1300 HEAT 1300/1300 HE	2000/2500 APDS 2500-4000/4000 Frag-HE	4000/5000 Frag-HE 5200/5200 Focused	2000/2500 APDS 4000/4000 Frag-HE	2000/2500 APDS 4000/4000 Frag-HE	800-1000/1300 HEAT 1300/1300 HE
penetration (mm)	335->400 HEAT	18 @1000m AP, 25-55 APDS	All IFVs	18 @1000m, 25-55 APDS	18 @1000m AP, 25-55 APDS	335->400 HEAT
auxiliary Armament	AT-5A/B ATGM	AT-5A/B ATGM	AT-10 ATGM	AT-5A/B ATGM	AT-5A/B ATGM	
rate of launch (missiles per min)	1-3 based on range	1-3 based on range	2-3 based on range	1-3 based on range	1-3 based on range	
basic load	4	5	8	3	4-6	
ammunition type	HEAT, Tandem HEAT	HEAT, Tandem HEAT	HEAT, Tandem HEAT	HEAT, Tandem HEAT	HEAT, Tandem HEAT	
range, effective (m)	4000	4000	4000	4000	4000	
penetration (mm @ m range)	650/925 tandem	650/925 tandem	650/700 tandem	650/925 tandem	650/925 tandem	
auxiliary Armament			30-mm 2A72 gun		30-mm AG-17 grenade launcher	
rate of fire, cyclic/practical (rpm)			350/350		60-100/100-400	
basic load			500		290	
ammunition type			Frag-HE, HEI-T, APDS-T		Frag-HE, Self destruct Frag-HE	
range, effective/max aimed (m)					700 direct, 1200 indirect/1730	
auxiliary Armament	7.62-mm PKT MG	7.62-mm PKT MG	3 x 7.62-mm PKT MG	2x7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG
rate of fire, cyclic/practical (rpm)	650/250	650/250	650/250	650/250	650/250	650/250
basic load	2000	2000	6000	2940	2000	2000
range, effective/max aimed (m)	1000/1300	1000/2000	1000/1000-2000	1000/2000	1000/2000	1000/2000
vehicle characteristics			3 x 2000			
night sights						
commander	IR/II	IR/II	Thermal	IR/II	IR/II	IR/II
gunner	IR/II	IR/II, thermal available	Thermal	IR/II	IR/II	IR/II
driver	IR/II	IR/II	IR/II	IR/II	IR/II	IR/II
speed, road/off-road/x-country (kph)	65/40-45/	65/45/35	70/45/35	60/35	70/45/10	70/7/10
range, road (km)	600	600	600	500	500	500
trench crossing (width x height m)	2.5x0.7	2.5x0.7	2.2x0.8	1.2x0.6	1.5x0.8	2.2x0.8
grade x side slope (degrees)	35x17	35x17	60x17	32x18	35x25	
ground clearance (mm)	390	420	190 to 510	100 to 450 adjustable	100-530 adjustable	425
fording (m)/swim speed (kph)	swim 7	swim 7	swim 10	swim 9-10	swim 10	swim
armor, hull/turret (mm)	16-19/19-33	16-19/19-33	19/19-35	16	16	10
weight (mt)	13.3	14.3	18.7	8.0	12.9	12.5
dimensions (LxWxH m)	6.74x2.94x2.15	6.72x3.15x2.45	7.2x3.2x2.6	5.5x2.7x1.615	6.1x3.134x2.25	6.75x2.97x1.98
crew	3 + 8	3 + 7	3 + 7	2 + 5	2 + 5	6
night Gunner Sights	IR/II sight range 800-1000 m.	IR/II range 1000 m. SANOET-I thermal sight range 2600 m	Thermal sight 2600 m. Early models had II	IR/II range 1000 m.	Bow mount for squad RPK-74 light MG. IR/II range 1000 m.	TALL MIKE radar on -1K cmd variant. IR/II range 1000 m.



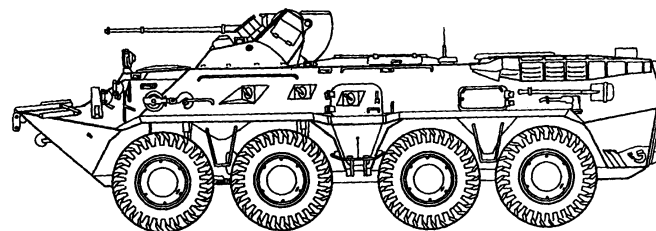
BTR-60PB Armored Personnel Carrier



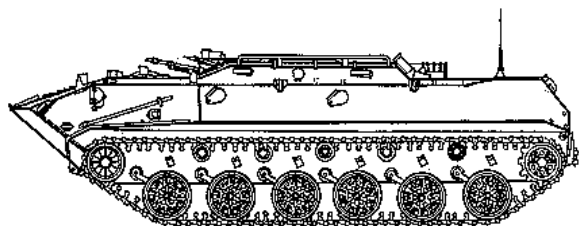
BTR-70 APC



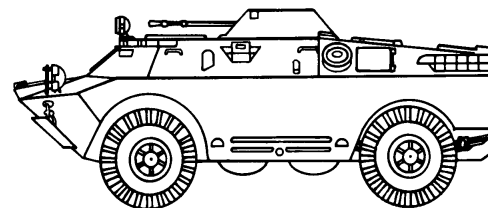
BTR-80 APC



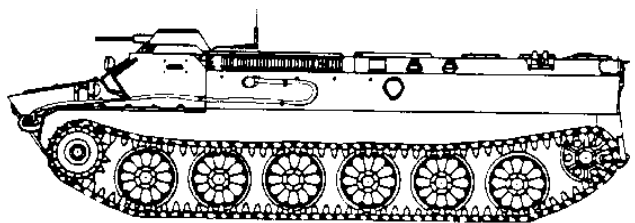
BTR-80A APC



BTR-D APC

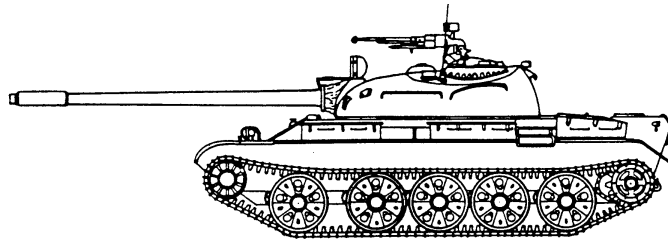


BRDM-2 Armored Scout Car

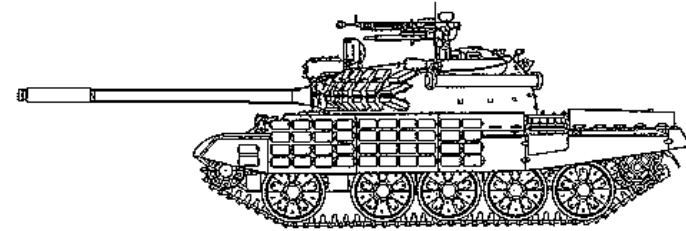


MTLB

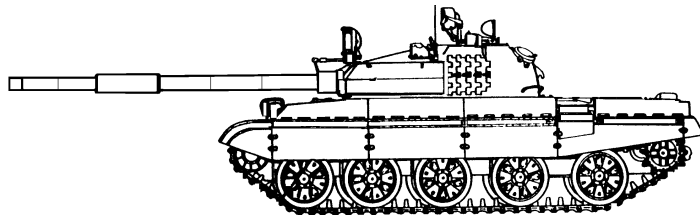
APCs/Armored Scout Cars	BTR-60PB APC	BTR-70 APC	BTR-80 APC	BTR-80A APC	BTR-D APC	BRDM-2	MTLB
main armament (caliber, model)	14.5-mm KPVT MG	14.5-mm KPVT MG	14.5-mm KPVT MG	30-mm 2A42 gun	2x7.62 PKT MG	14.5-mm KPVT MG	7.62 PKT MG
stabilized gun	no	no	no	no	no	no	no
elevation/traverse (degrees)	-5 to 30/360	-5 to 30/360	-5 to 30/360	-5 to 75/360		-5 to 30/360	-5 to 35
rate of fire (rpm) sustained/maximum	150/600	150/600	150/600	300/550	250/650	150/600	250/650
basic load	500	500	500		2000	500	2000
ammunition type	API, API-T, HE-T, I-T	API, API-T, HE-T, I-T	API, API-T, HE-T, I-T	Frag-HE, HEI-T, APDS-T	Ball, Heavy Ball Ball-T, API, API-T, Inc	API, API-T, HE-T, I-T	Ball, Heavy Ball Ball-T, API, API-T, Inc
range, max effective/max aimed (m)	2000/2000 ground 1400/2000 air	2000/2000 ground 1400/2000 air	2000/2000 ground 1400/2000 air	2000/2500 APDS-T 2500-4000/4000 HE	1000/1500	2000/2000 ground 1400/2000 air	1000/1500
penetration (mm @ m range)	30-mm @ 500 m API-T 20-mm @ 1000 m	30-mm @ 500 m API-T 20-mm @ 1000 m	30-mm @ 500 m API-T 20-mm @ 1000 m	18 @ 1000m AP, 25- 55 APDS	8 @ 500 m Ball	30-mm @ 500 m API-T 20-mm @ 1000 m	8 @ 500 m Ball
auxiliary Armament	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG		7.62-mm PKT MG	
rate of fire, cyclic/practical (rpm)	650/250	650/250	650/250	650/250		650/250	
basic load	2000	2000	2000	2000		2000	
range, effective/max aimed (m)	1000/2000	1000/2000	1000/2000	1000/2000		1000/1500	
penetration (mm @ m range)	8 @ 500 m	8 @ 500 m	8 @ 500 m	8 @ 500 m		8 @ 500 m	
vehicle characteristics							
night sights							
commander	IR/II	IR/II	IR/II			IR/II	IR/II
gunner				IR/II			
driver	IR/II	IR/II	IR/II	IR/II		IR/II	IR/II
speed, road/off-road (kph)	80/?	80/45	85/60	90/45	61/35	95/?	62/30
range, road (km)	500	450	600	800	500	750	500
trench crossing (width x height m)	2x0.4	2x0.5	2x0.5	2x0.5		1.25-1.6x0.4	2.7x.7
grade x side slope (degrees)	30x25		30x25	30x25		30x25	60x
ground clearance (mm)	470	475	475	475	100-450 adjusts	430	415
fording (m)	swim 10	swim	swim 10	swim 10	swim 10	swim 10	swim 5-6
armor, hull/turret (mm)	7-11/7	7-10/7	7-10/7	7-10/7	16/	14/7	7/7-14
weight (mt)	10.3	11.5	13.6	14.6	6.7	7	11.9
dimensions (LxWxH m)	7.22x2.82x2.3	7.54x2.8x2.24	7.55x2.95x2.41	7.65x2.9x2.8	5.88x2.63x1.67	5.75x2.275x2.31	6.35x2.85x1.87
crew	2 + 8	2 + 8	2 + 8	2 + 8	1 + 12	4	2 + 11
remarks					Abn Asslt has APC carriers w/AGS-17 grenade launcher and 5 AT-4 ATGMs.		



T-55



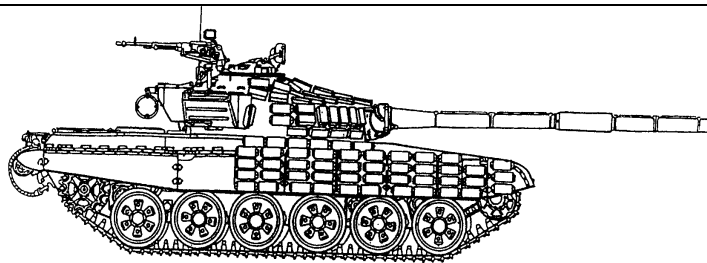
T-55AMV



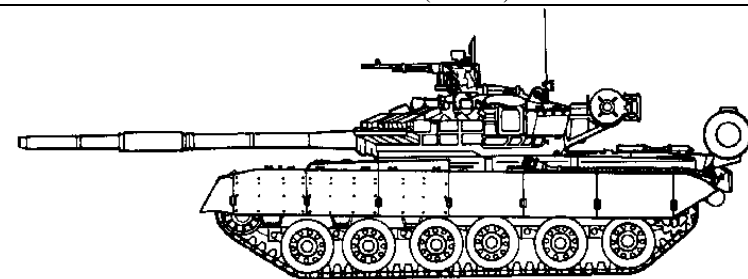
T-62M



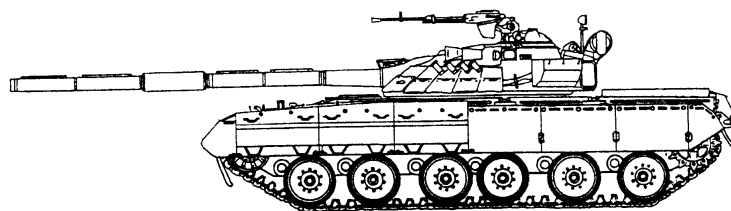
T-64B with ERA (T-64BV)



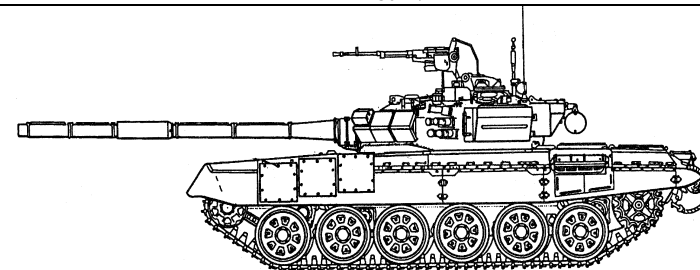
T-72BV



T-80BV

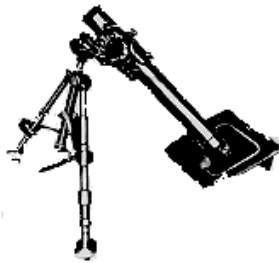


T-80U

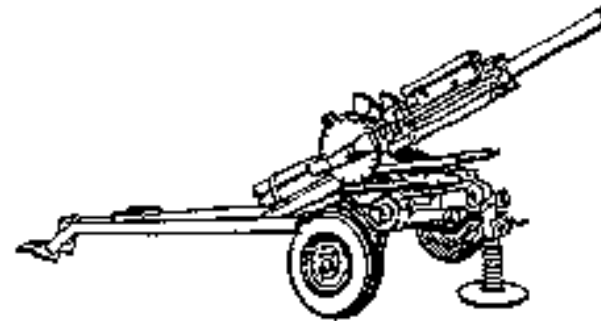


T-90

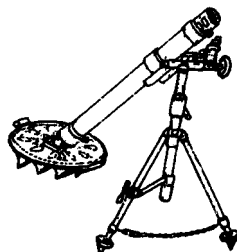
Medium Tanks	T-55	T-62M	T-64BV	T-72BV	T-80BV	T-80U	T-90
main armament	100-mm D10-T2S gun	115-mm 2A20 gun	125-mm 2A46-2 gun	125-mm 2A46M gun	125-mm 2A46-2 gun	125-mm 2A46M-1 gun	125-mm 2A46M-2 gun
stabilized	1- plane	2 planes	2 planes	2 planes	2 planes	2 planes	2 planes
Rate of fire (rpm)	5-7	3-5	6-8, 2 manual	4-6, 2 manual	6-8, 2 manual	7-8, 2 manual	7-8, 2 manual
fire control	TNP-165A day sight TSh-2-22 telescope	Volna FCS TShSM-41U telescope	1G42 day sight	1A40-1 FCS 1K13-49 ATGM/night	1A33 FCS 1G42 day sight	1A42 FCS 1G46 day sight	1A45T FCS 1G46 day sight
elevation (degrees)	-4 to 17	-5 to 18	-6 to 18	-6 to 14		-4 to 18	-4 to 18
basic load/in auto loader	43	40	37/24	45/22	45	45/28	43
ammunition type	APFSDS-T, HEAT, Frag-HE	APFSDS-T, HEAT, Frag-HE, AT-10 ATGM	APFSDS-T, HEAT, Frag-HE, AT-8 ATGM	APFSDS-T, HEAT, Frag-HE, AT-11A/B ATGM	APFSDS-T, HEAT, Frag-HE, AT-8 ATGM	APFSDS-T, HEAT, Frag-HE, AT-11A/B ATGM	APFSDS-T, HEAT, Frag-HE, AT-11A/B ATGM
range, max effective/ max aimed (m)	1500-2500/2500 APFSDS-T 1000/2500 HEAT 2200/4000 Frag-HE	1500-2000+/3000 APFSDS 1200/1500 HEAT 2000/4000 Frag-HE 4000/4000 ATGM	3000/3000 APFSDS 2500/3000 HEAT 4000 AT-8 ATGM 4000/4000 Frag-HE	3000/3000 APFSDS 2500/3000 HEAT 4000 AT-11A/B ATGM 4000/4000 Frag-HE	3000/3000 APFSDS 2500/3000 HEAT 4000 AT-8 ATGM 4000/4000 Frag-HE	3000/3000 APFSDS 2500/3000 HEAT 5000 AT-11A/B ATGM 4000/4000 Frag-HE	3000/3000 APFSDS 2500/3000 HEAT 5000 AT-11A/B ATGM 4000/4000 Frag-HE
Penetration (mm)	200-418 APFSDS-T 380 HEAT	237-520@1000 APFSDS-T 495 HEAT 650-700 AT-12	590-630@ 2000 m APFSDS 650-750 HEAT 700 ATGM	590-630@ 2000 m APFSDS 650-750 HEAT 870 ATGM (800+ERA)	590-630@ 2000 m APFSDS 650-750 HEAT 700 ATGM	590-630@ 2000 m APFSDS 650-750 HEAT 870 ATGM (800 + ERA)	590-630@ 2000 m APFSDS 650-750 HEAT 870 ATGM (800 + ERA)
auxiliary armament	12.7-mm DShKM MG		12.7-mm AA NSV T MG	12.7-mm AA NSV T MG	12.7-mm AA NSV T MG	12.7-mm AA NSV T MG	12.7-mm AA NSV T MG
rate of fire, cyclic/ practical (rpm)	600/80-100		800/210	800/210	800/210	800/210	800/210
basic load	500		300	300	500	500	300
range, ground/AA	1500/2000		2000/1600	2000/1600	2000/1600	2000/1600	2000/1600
auxiliary armament	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG	7.62-mm PKT MG
rate of fire, cyclic/ practical (rpm)	800/250	800/250	650/250	650/250	650/250	650/250	650/250
basic load	1250	2500	1250	2000	1250	1250	2000
range, max effective/ max aimed (m)	800/2000	800/2000	1000/2000	1000/2000	1000/2000	1000/2000	1000/2000
vehicle characteristics							
range finder	Stadiametric	laser 4000 m	1G42 laser 4000 m	TPD-K1M laser 4000 m	1G42 laser 4000 m	laser 5000 m	laser 5000 m
night sights							
commander	TKN-1 IR/II	IR/II	TKN-3V IR/II	TKN-3V IR/II	TKN-3V IR/II	TKN-4S IR/II 1300 active/850 passive OR AGAT FLIR	PNK-4S IR/II OR TKN-4SAGAT FLIR
gunner	TPN-1M-22 IR/II 800 m	1K13-1 IR/II 800 m	TPN1-49-23 IR/II 1300 m active/800 passive	1K13-49 1300 m active/850 passive	TPN3-49-23 IR/II 1300 m active/800 passive	Buran-PA 1500 active/1200 passive OR AGAVA-1 FLIR 2600 m	Buran-PA 1500 active/1200 passive OR AGAVA-2 FLIR 2600 m
driver	IR/II	IR/II	IR/II	IR/II	IR/II	IR/II	IR/II
weight (mt)	36	41.5	40.3	44.5	44.5	46.0	46.5
dimensions (LxWxH m)	6.2/3.26/2.27	6.63/3.52/2.4	6.45/3.41/2.17	6.91/3.58/2.19	6.98/3.58/2.2	7.01/3.60/2.20	6.86/3.37/2.23
Speed, road/off-road (kph)	50/25	45/35	60/35-45	60/45	70/48	70/48	60/43
range, road (km)	500	650	500	500, 900 w/tanks	370, 500 w/external tanks	335, 440 w/external tanks	500, 650 w/external tanks
trench crossing (m)	2.7	2.85	2.85	2.77	2.85	2.85	2.8
vertical step (m)	0.9	0.8	0.8	0.9	1.0	1.0	1.0
grade (degrees)	60	30	30	30	32	32	30
ground clearance (mm)	425	350	450	400	451	431	490
Forcing (m)	1.4, 5.0 snorkel	1.4, 5.5 snorkel	1.8, 5.0 snorkel	1.2, 5.5 snorkel	1.5, 5.0 snorkel/12 BROD-M	1.5, 5.0 snorkel/12 BROD-M	1.2, 5.0 snorkel
armor, hull (mm)	200	102-200	410 APFSDS/1000 HEAT	520 APFSDS/1020 HEAT	500 APFSDS/1060 HEAT	700 APFSDS/1060 HEAT	720 APFSDS/1020 HEAT
turret	200	330	410 APFSDS/950 HEAT	530 APFSDS/1300+ HEAT	420 APFSDS/990 HEAT	620 APFSDS/1000 HEAT	730 APFSDS/1300+ HEAT
NBC protection	Yes	Yes	Yes	Yes	yes	yes	yes
crew	4	4	3	3	3	3	3
remarks	T-55AMV can fire AT-10 ATGM.	Upgrade: ATGM, FCS, bra armor, no 12.7-mm MG	Kontakt ERA adds 0 mm for APFSDS/500 mm for HEAT	Kontakt ERA adds 0 mm for APFSDS/500 mm for HEAT	Kontakt ERA adds 0 mm for APFSDS/500 mm for HEAT	New ERA adds 200 mm for APFSDS/500 mm for HEAT	New ERA adds 200 mm for APFSDS/500 mm for HEAT



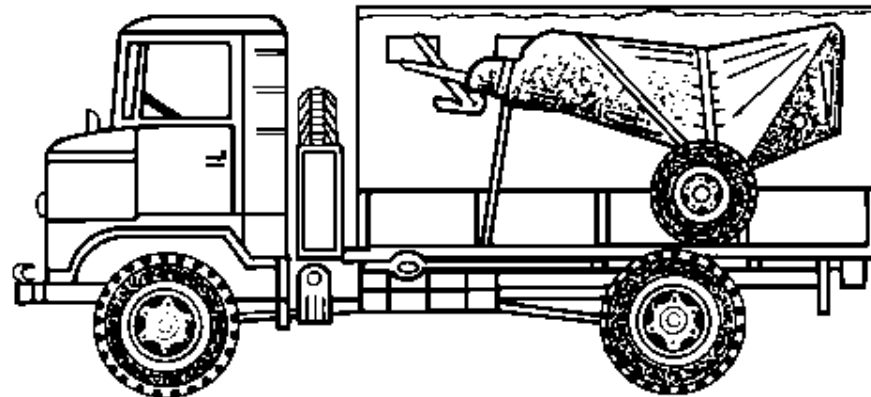
60-mm M-57 Manportable Mortar



82-mm 2B9/Vasilek Automatic Mortar

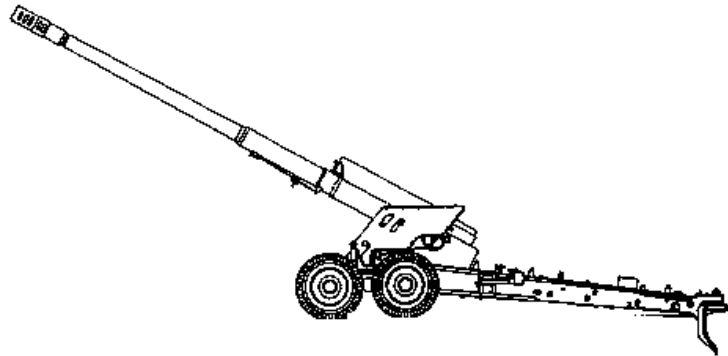


82-mm 2B14-1 Podnos Mortar

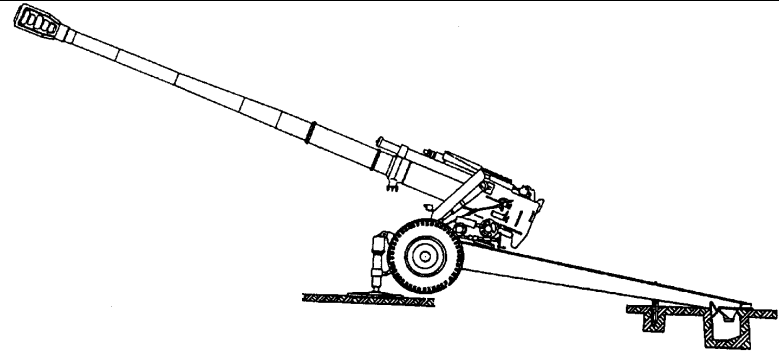


2B11/2S12 Portee Mortar

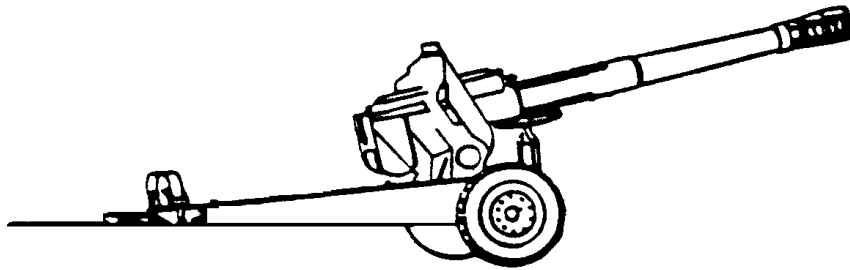
Mortar	60-mm M-57	82-mm 2B9 automatic	82-mm 2B14-1 Podnos	120-mm 2B11/2S12	120-mm M1943
range, conventional (km)	75-2500	4270	4270	7000	5700
extended range				9000	7000
ammunition types	HE Illumination Smoke	Frag-HE HEAT Smoke Incendiary Illumination Chemical	Frag-HE Illumination smoke	Frag-HE Smoke Incendiary Illumination Chemical DPICM-ER DPICM HEAT	HE Frag-HE Smoke Illumination Incendiary Chemical
rate of fire (rpm) maximum	30	120	24	15	9
sustained		300 first hour		4 est	4
elevation (degrees)	40 to 85	-1 to 85	45 to 85	45 to 80	45 to 80
traverse (degrees left/right)		30/30	4/4	5.26/5.26 moving bipod	4/4 total
mount type	bipod and baseplate	split-trail carriage, w/emplacement jack		baseplate & tripod or GAZ-66 truck	baseplate & tripod
basic load		226		48	
emplacement/displacement time (min)		1.5		3/3 est	5/3
weight (kg)	19.4	635		3640	522 travel
crew	2	4	4	5	6
remarks		The 2B9 is a breech-loaded, recoil-operated mortar using a 4-round clip.	Muzzle-loaded, smoothbore, man-packed mortar.		Not shown



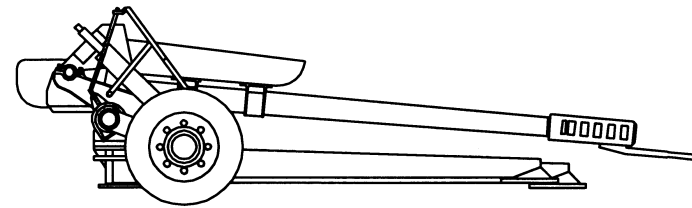
2A36 Field Gun



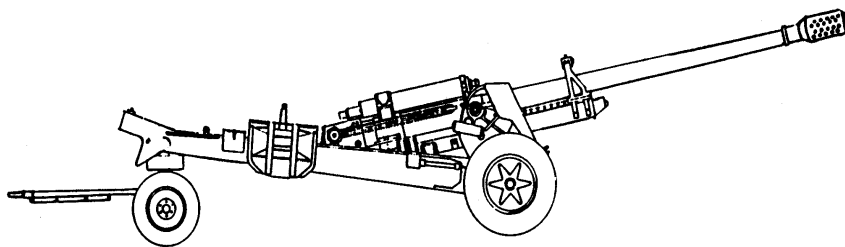
2A65 Howitzer



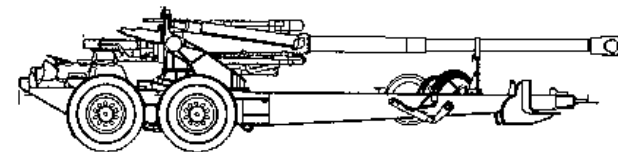
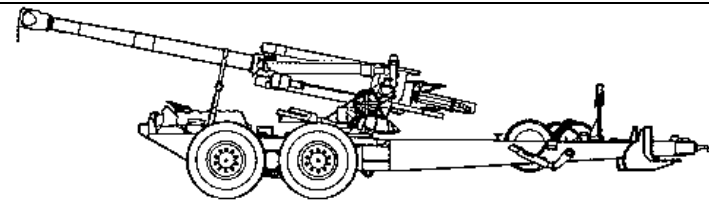
D-20 Gun-Howitzer



D-30 Howitzer

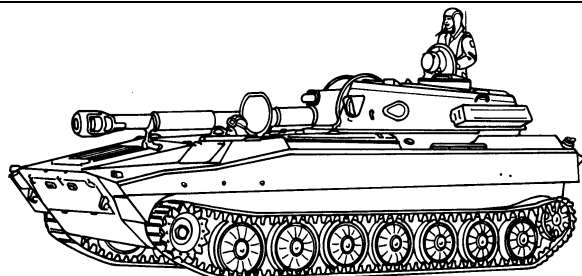


M-46 Gun

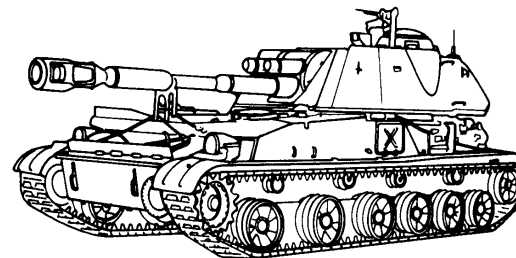


G5

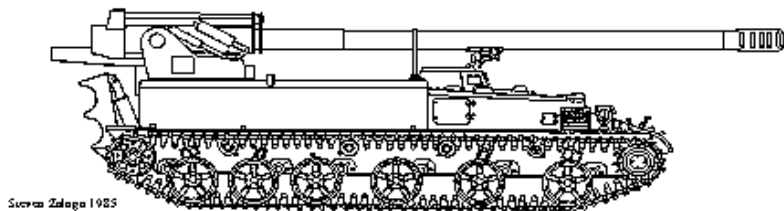
Towed Artillery	152-mm 2A36 Field Gun	152-mm 2A65 Howitzer	152-mm D-20 Gun-Howitzer	122-mm D-30 Howitzer	130-mm M-46 Gun	155-mm G5 (SA)
range, conventional (km)	28.4	24.7	17.4	15.3	22.5	30
extended range	30.5	28.5	24.4	21.9	38	39
direct fire	1000	1000	1000	1000	1.14	3000
rate of fire (rpm), burst	6	8	6	8	8	3
sustained	4	4	1	4	5	2
ammunition type	HE HE-BB Frag-HE ICM APT concrete piercing, chemical nuclear Krasnopol semi-active laser-guided	Frag-HE ICM Illumination Krasnopol Santimeter Smoke VHF jammer Chemical nuclear	Frag-HE HEAT-SS Smoke Chemical Nuclear Illumination Flechette Mines Incendiary CP RAP incendiary	Frag-HE HEAT-FS Kitolov-2M Chemical Illumination Smoke Frag-HE-RAP Flechette incendiary	Frag-HE APC-T Smoke Illumination chemical	Frag-HE smoke, illumination Leaflet submunitions
elevation (degrees)	-2.5 to 57	-4 to 70	-5 to 45	-7 to 70	-2.5 to 45	-3 to 75
traverse (degrees left/right)	25/25	27/27	29/29	360	25/25	41/41
emplace/displace time (min)	5/7	3	2.5/2.5	1.5/3.5	6/7	2/1
speed towing, road (kph)	70	80	60	60	50	90
off road	20	20	30	25	20	50
prime mover		Ural-4320	AT-S track, MTLB-T, Ural-375, Ural-4320	MTLB-T, ZIL-131, ZIL-157, Ural-375D	AT-P tractor, AT-S track, ATS-59 tractor, M-1972 medium artillery tractor	10-ton vehicle
weight (kg)	9800	7000	5700	3210	8450	13750
length (m), travel position	12.7	12.7	8.1	5.4	11.73	12.1
width (m)	2.7	2.5	2.35	1.9	2.45	3.3
height (m)	2.7	2.95	2.52	1.6	2.55	2.3
crew	8	5	8	5	8	8
remarks	ICM round penetration is 100-mm.			HEAT round penetration is 460 mm.	Variants: Type 59 & 59-1 of China, M59-1M of Egypt	in service in Iran, Iraq, south Africa, Qatar



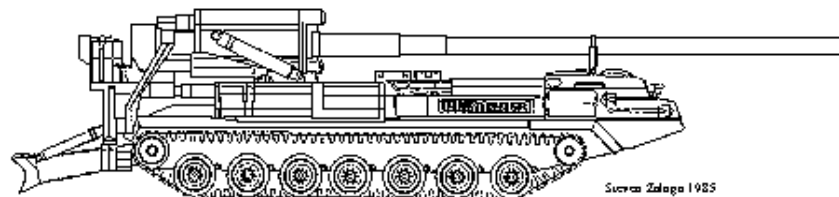
2S1 Howitzer



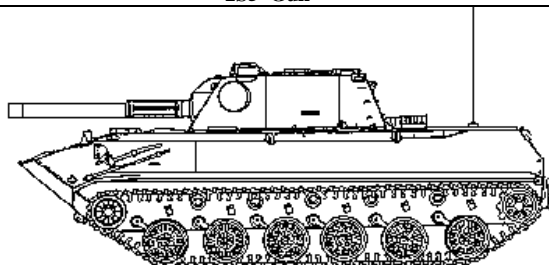
2S3 Howitzer



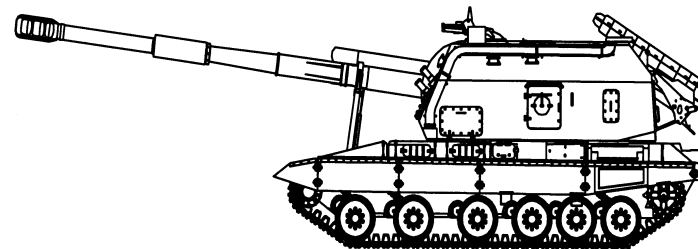
2S5 Gun



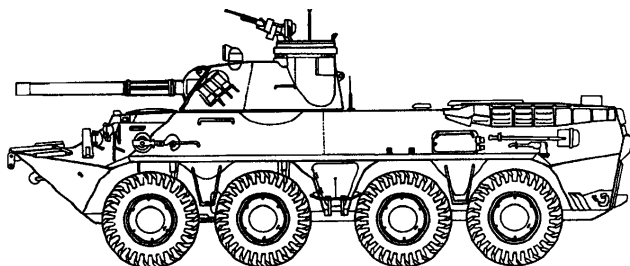
2S7 Gun



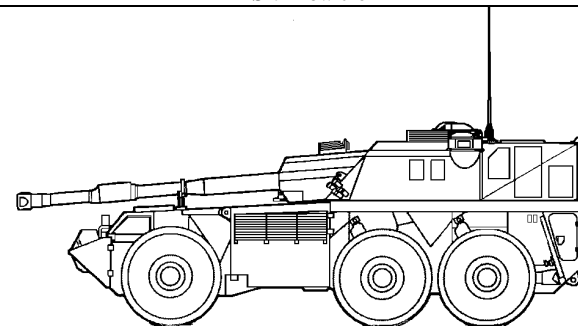
2S9 Combination Gun



2S19 Howitzer

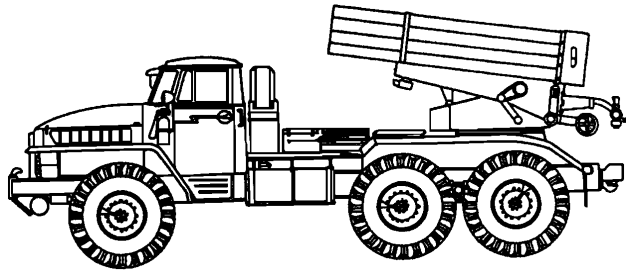


2S23 Nona-SVK

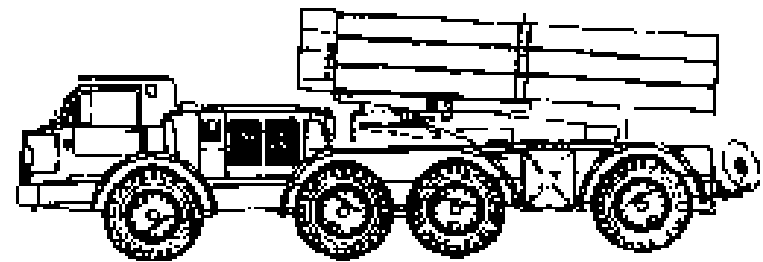


G6

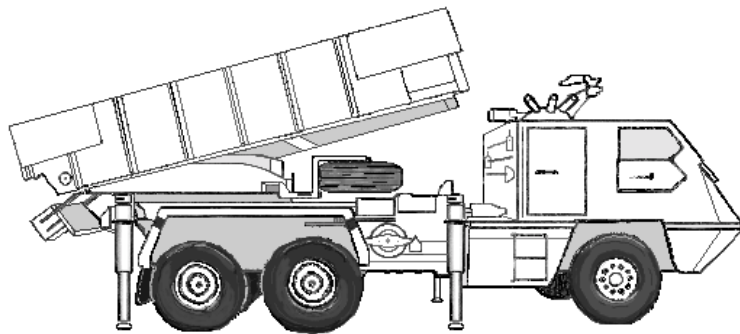
Self-Propelled Artillery	122-mm 2S1 Howitzer	152-mm 2S3 Howitzer	152-mm 2S5 Gun	203-mm 2S7 Gun	120-mm 2S9 Combination Gun	152-mm 2S19 Howitzer	120-mm 2S23 Combination Gun	155-mm G6 (SA)
range, conventional (km)	15.3	17.4	28.5	37.5	8.85	24.7	8.85	30
extended range	21.9	24.4	50	47.5	13	29	13	39
direct fire (m)	1000	1000	1000		800	1000	1000	3000
ammunition type	DPICM-ER DPICM HEAT smoke Frag-HE Frag-HE-RAP illumination incendiary chemical Flechette Kitolov semi-active laser-guided expended jammer	Frag-HE HEAT-FS Frag-HE-RA DPICM DPICM-BB APT Illumination Smoke 0.2 kt nuclear chemical incendiary Flechette AT mine AP mine TV recon Jammer Krasnapol	APT chemical concrete piercing HE Frag-HE ICM Flechette Illumination Smoke Krasnapol & Santimeter semi- active laser-guided nuclear	concrete piercing HE Frag-HE HE-RAP DPICM	Frag-HE Frag-HE-RAP Frag-HE laser guided HEAT-FS Illumination Smoke Incendiary Chemical Flechette	Frag-HE DPICM DPICM-BB HEAT-FS Frag-HE-BB AT mine AP mine Krasnapol Jammer Incendiary Smoke TV recon Flechette chemical	Frag-HE (3VOF49) Frag-HE-mtr Frag-HE-RAP-Mtr DPICM how Frag-HE laser- guided how HE-RAP how HEAT-FS Frag-HE how Illumination mtr Smoke (WP) mtr Incendiary mtr Chemical mtr Flechette how	Frag-HE Smoke Illumination Leaflet submunitions
elevation (degrees)	-3 to 70	-4 to 60	-2 to 57	0 to 60	-4 to 80	-4 to 68	-4 to 80	-5 to 75
traverse (degrees left/rt)	360	360	15/15	15/15	360	360	35/35	40/40
rate of fire (rpm) max	6	4	6	2	10	8	10	3
rof (rpm) sustained	1-2	1	1-2	.5	4	2	4	1
basic load	45	46	30	8	40	50	30	45
emplace/displace time (min)	2/1	3/3	2/1	6/10		1-2/1-2	1/1 est	1/.5
weight (mt)	15.7	27.5	28.2	46	8.0	42	14.5	48
speed, road (kph)	60	60	63	50	60	60	80	85
off road	30	25	25	30	35	25	60	30
swim (kph)	4.5	NA	4.5	NA	9	NA	10	NA
road range	500	450	500	500	500	500	600	700
fording	Amphibious	1.0	1.05	1.5	amphibious	1.5	amphibious	1.0
crew	4	4	5	7	4	5	4	6
remarks		Self-entrenching. Load time 46 seconds. 7.62-mm PKT MG.	Self-entrenching.	Self-entrenching.		Self-entrenching in 40 to 60 minutes. 12.7-mm NSVT MG.	BTR-80 chassis	



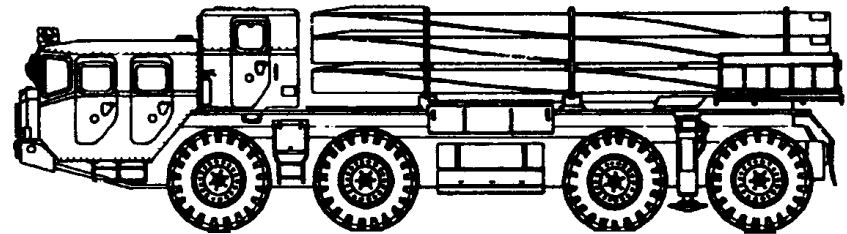
BM-21



9P140



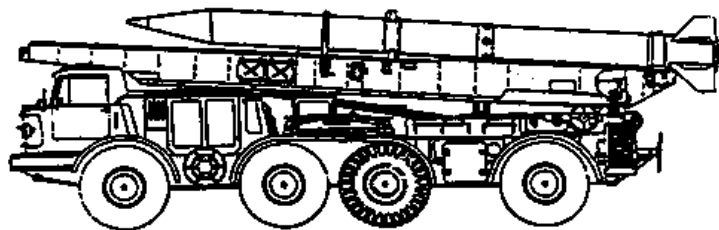
ASTROS II



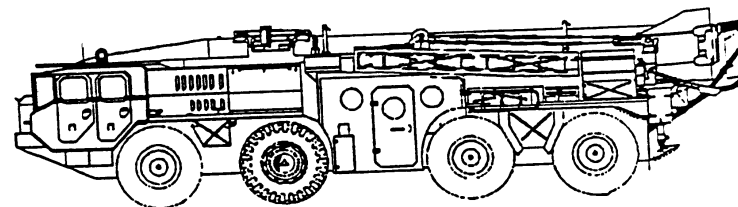
9A52-S SMERCH-M

Multiple Rocket Launchers	122-mm BM-21	220-mm 9P140 Uragan	300-mm 9A52-S SMERCH-M	ASTROS II 127-mm, 180-mm or 300-mm
range, maximum (km)	32.7	35	70	127-mm SS-30 30 km 180-mm SS-40 35-km 300-mm SS-60 60 km 300-mm SS-80 90 km
salvo time (sec)	20	20	38	
reload time (min)	10	15-20	36	
warhead types	Frag-HE, ICM w/AP or AT mines, illumination, jammer, smoke	Frag-HE, ICM w/ AT&AP bomblets, AT&AP mines, FAE	Frag-HE, chemical, 72 AP mines, 5 AT mines, FAE	DPICM, HE-incendiary, AT mines, AP mines, runway denial
emplace/displace time (min)	3/2	3/3	3/3	
weight (m)	13.7	20	43.7	20
length (m)	7.35	9.3	12.1	8
width (m)	2.4	2.8	3.05	2.4
height (m)	3.09	3.2	3.05	2.6
speed, road (kph)	75	65	60	70
road range (km)	450	500	850	
crew	5	4	4	3
remarks	40 tubes	16 tubes	12 tubes.	*

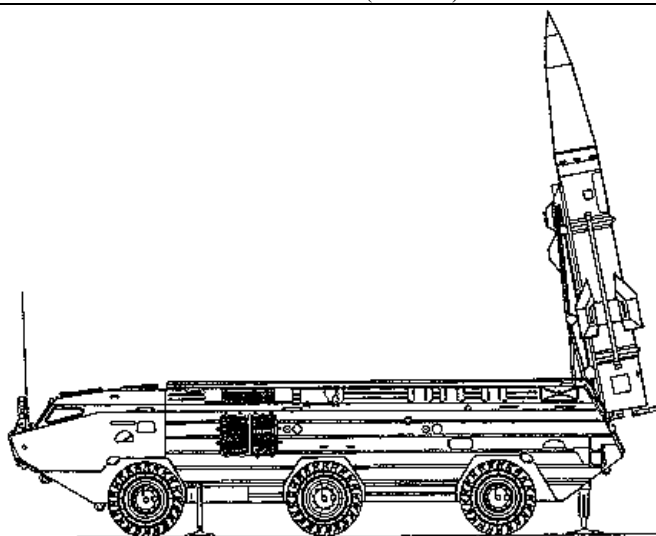
* The Astros can fire three different canisterized wraps around rocket, 127-mm SS-30, 180-mm SS-40, 300-mm SS-60, and 300-mm SS-80.



9P113 LUNA-M (FROG-7)

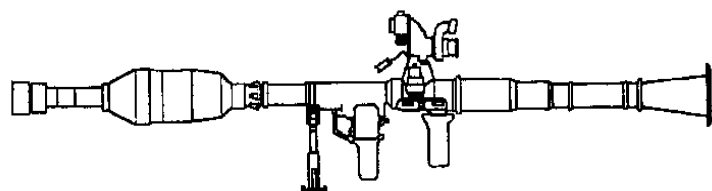


SS-1c SCUD



SS-21 Mod3/SCARAB 9P129-1M Tochka-U

Surface to Surface Missiles (SSM)	9P113 LUNA-M (FROG-7)	SS-1c SCUD	SS-21
warhead type	HE, DPICM submunitions, chemical, nuclear	HE, chemical (thickened VX), 5-80 kt nuclear	Up to 482 kg
range (km)	20-70	300	20-120
CEP (m)	400	1000	15
reaction time (min)		60	20
reload time (min)	Varies	varies	40 to refire



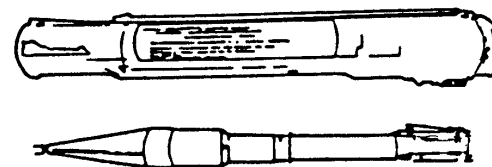
RPG-7V ATGL with TBG-7V Thermobaric Grenade



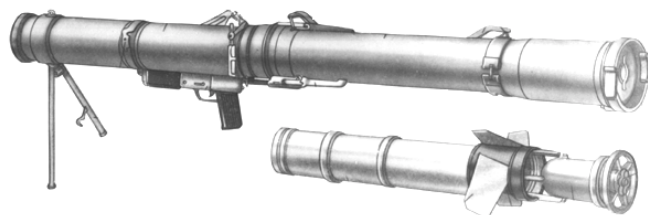
RPG-7V ATGL



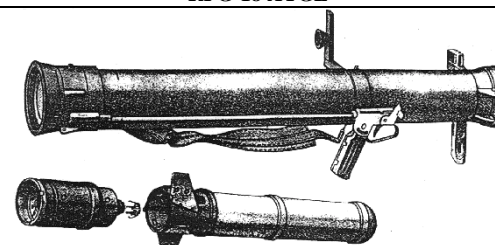
RPG-16D



RPG-18 ATGL

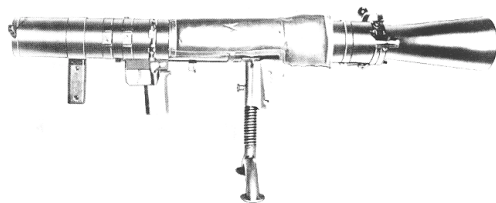


RPO Infantry Rocket Flame Weapon

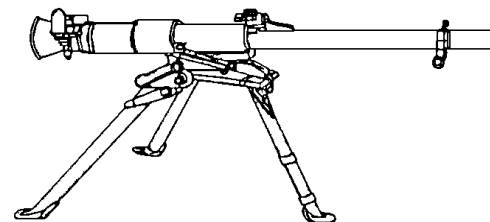


RPO-A Infantry Rocket Flame Weapon

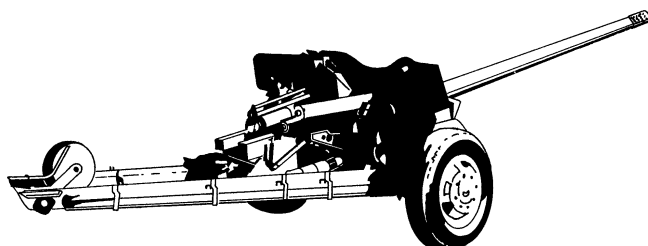
AT Grenade launcher	RPG-7V						RPG-16D	RPG-18	RPG-22	RPO-A
Launcher										
tube caliber (mm)	40						58.3	64	72	93
length (mm)	953						1100	1050	750/850	920
weight (kg)	7.9						10.3	2.7	2.8	11
crew	2						2	1	1	1
rate of fire (rpm)	6						4-6	NA	NA	2
unit of fire	5						5	5	5	2 per carton
Projectile	PG-7VS	PG-7VM	PG-VR	PG-VL	TBG-7V	OG-7V/7VM	PG-16			RPO-A
Range, moving/stationary tgt	300/500	300/500	200	300	200	950/1000	500	200	250	200 direct fire 600 effective 850 with sights
velocity (mps)		140		112		145/152	130	115	133	125
armor penetration (mm)	330	330	750+	600			375	360	390	
warhead type	HEAT	HEAT	tandem HEAT	HEAT	Thermobaric	Frag-HE	HEAT	HEAT	HEAT	thermobaric
warhead caliber (mm)	85	72	105	93		40	58.3	64	72	93
length (mm)		950	1306	980		569/595	600	670	618	
weight (kg)	2.2	2	4.5	2.6	4.5	1.7	3	1.4	1.48	2.3



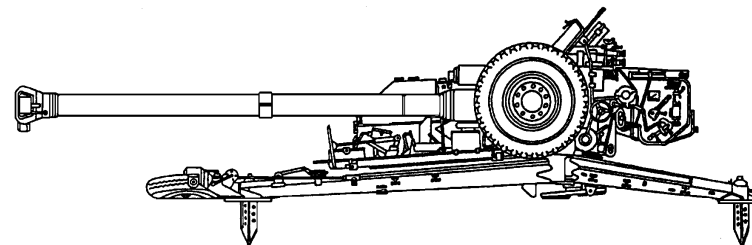
84-mm Carl Gustaf M2 Recoilless Rifle



SPG-9 Recoilless Gun



100-mm MT-12 AT Gun



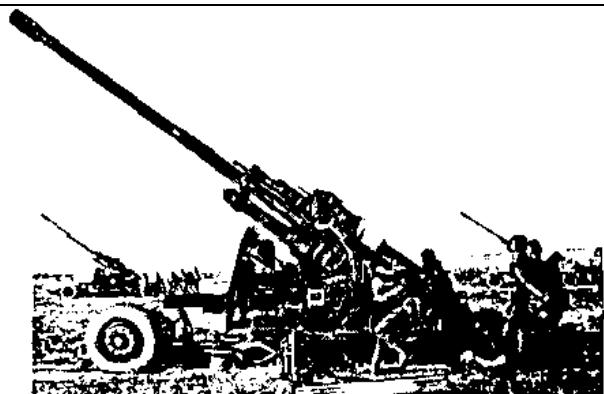
125-mm 2A45M AT Gun

AT Guns & Rifles	84-mm Carl Gustaf Recoilless Rifle	73-mm SPG-9 Recoilless Gun	100-mm MT-12 AT Gun	125-mm 2A45M AT Gun
dimensions L x W x H (m)	1.02 length	2.11 x 0.99 x 0.8 travel	9.65 x 2.3 x 1.6 travel	7.12 x 2/3 x 2.09 travel
weight (kg)	14.2	47.5	3100	6500
crew	1 or 2	3	6	7
rate of fire, maximum (rpm)			15 indirect fire	
sustained	6	6	6-8	6-8
fire control	3x DVO, used with laser range finder LRF computer sight and II available	4x DVO, II, IR, LRF computer sight available	5x DF/indirect fire sights, II night sights. Automated FCS, FLIR sights available Radar-directed FCS available	5x DF/indirect fire sights, II night sights. Automated FCS, FLIR sights available Radar-directed FCS available
elevation (degrees)		-3 to 7	-7 to 20	-6 to +25
traverse (degrees left/right)		15/15	360/360	360/360
emplace/displace time (min)		1	2 - 3	1.5/2.0
combat load	5	12	20 on prime mover w/crew, 80 reload	60 supply reload
ammunition types (range / penetration)	HEAT tandem, HEAT-RA, HEDP, HE, illumination, smoke	HEAT-RA, HE-RA	HEAT-FS, Frag-HE, APFSDS-T, AT-10 HEAT/Kan tandem ATGM	HEAT-FS, Frag-HE, APFSDS-T, AT-11 HEAT/ Invar tandem ATGM
HEAT	500 m/500+ mm tandem		2500 m/380 mm	2,500 m/650-800 mm
HEAT-RA	700 m/400 mm	1,000 m/400 mm		
HEDP	1000 m personnel, 500 vehicles, 300 moving vehicles/ 150+ mm		NA	
HE/Frag-HE	HE 1100 m, personnel and soft targets	HE-RA 1300 m	Frag-HE 3000 m	Frag-HE 5000 m
APFSDS-T			2500-3000 m/418 mm @ 2000 m	3000 m/590-630 mm
ATGM			5,000/ 650, 700 tandem	5000 m/ 700-870 ATGM (800 + ERA)
range, indirect fire	1100	1300	8,200	8200

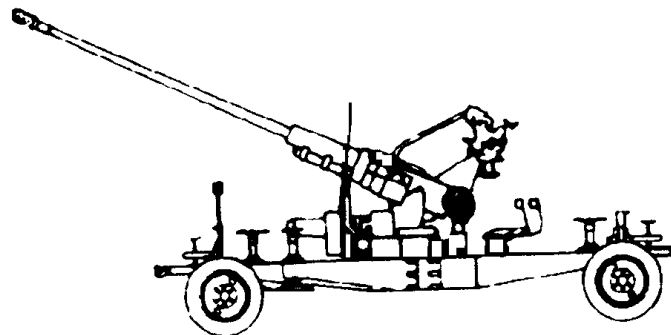
Antitank Guided Missiles (ATGMs)	AT-3c SAGGER 9K111 Malyutka	AT-4a/b SPIGOT 9K111/9K111M	AT-5, -5b SPANDREL 9K133/9K133m	AT-6, -6b, -6c SPIRAL 9K114 Shturm	AT-7 SAXHORN 9K115 Metis/	AT-8 SONGSTER 9K112 Kobra	AT-9 9K120 Ataka
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		Fagot/Factoria	Konkurs/Konkurs-M		AT-13 9K115-2 Metis-M		
launching platform	suitcase launcher, UAZ-469, 9P122/BRDM-1, 9P133/BRDM-2, M-80, BOV-1, BMD-1, Gazelle, BMP-1, Mi-2 HOPLITE, HIP	9P135 tripod, 9P148/BRDM-2, VTT-323 (NK)	9P135M tripod, BMD-1P/2/3, BMP-1P/-2, UAZ-469, BTR-RD, 9P148/BRDM-2, Gazelle, Mi-2 HOPLITE, HIP, Mi-24 HIND	Mi-24E HIND, Ka- 29 HELIX, Mi-28 HAVOC 9P149/MT-LB (AT-6 only)	9P151 firing post (tripod and shoulder), UAZ-469	T-64B/ T-64BV, T-80B/ T-80BK/T-80BV (gun launch)	Mi-24E HIND, Ka- 29 HELIX, Mi-28 HAVOC 9P149/MT-LB,
guidance/command link	wire MCLOS, AT veh/heli SACLOS	wire SACLOS	wire SACLOS	RF SACLOS	wire SACLOS	RF (30GHz) SACLOS	RF SACLOS
total weight (kg)	42-44	35.5	47.7-49	46.5 missile	16.8, 24 Metis-M	25	48.3 missile
day/night sights (night range, m)	8x day sight 1800 FLIR *	4x day sight 2500-3600 FLIR *	4x day sight 3600 FLIR*	optical day sight, TV II, FLIR*	day sight 2000+ FLIR*	day sight only	optical day sight or TV II, FLIR*
basic load	3-4 tripod	4 tripod, 8 near vehicle up to 20 on 9P148	4 tripod, 8 near vehicle up to 15 on 9P148	12 on 9P149 12 HIND, 16 HAVOC	4 tripod	6 per tank	12 on 9P149 12 HIND, 16 HAVOC
warheads	HEAT/ tandem HEAT Malyutka-2	HEAT	HEAT/ tandem HEAT	HEAT, HE tandem HEAT -6b/-6c	HEAT/tandem HEAT, thermobaric -M	HEAT	HEAT Tandem, thermobaric
range (m)	500-3000	70-2000/ 2500 Factoria	75-4000	400-5000 AT-6 -6000, 7000 -6b/6c	40-1000, 80-1500 Metis-M	100-4000	400-6000 heli 400-5000 grd
flight time to max. range (sec)	23-26	11	20/19	13.3, 16, 18.6 14.5 grd	6.2 8.4 Metis-M	10	15.0 heli 12.5 ground
penetration (mm)	AT-3a/c 400 AT-3c 500 Malyutka-2 800	480/550 Factoria	650/925	750, 950, 950/ 800 behind ERA	500, 1000/800 Metis-M	800/	950/800 behind ERA
remarks * upgrade available	other copies and variants	Can also launch AT-5/-5b to 4000 m. Users may employ a mix.					antihelicopter ATGM available

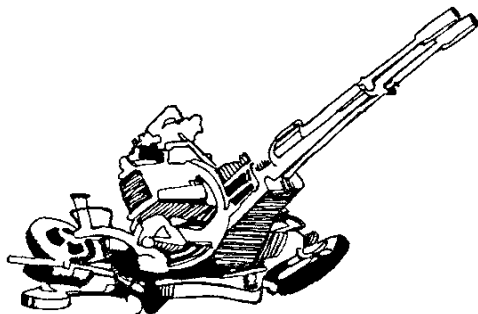
Antitank Guided Missiles (ATGMs)	AT-10 STABBER 9K116-1/9K116 Bastion/Kastet/Kan Basnya/Sheksna	AT-11a SNIPER 9K119, Svir/AT-11b 9K119M, Invar	AT-14 Kornet	AT-16 9K121 VIKhR	Milan 1, 2, 3 (Europe)	Tow, ITOW, TOW-2, -2a, -2b (US)	HOT 1, 2, 3 (Europe)
launching platform	T-55AMV, T-55AMB2, MT-12, BMP-3, T-62M (gun launch)	T-72B, T-72S, T-72BV, T-72BM, T-80U, T-84 T-90, 2A45M AT gun (gun launch)	tripod, UAZ-469 "jeep", Kornet-E ATGM Launch Veh/BMP-3	Ka-50 HOKUM, Su-25T FROGFOOT	tripod, compact turret, Marder 1A3, Spartan APC, VBL APC, Panhard, jeep	tripod, M2 Bradley IFV, M3 CFV, M901, HMMWV, LAV-AT, UH-1J	VAB, AMX-10 launch veh, Panhard, VCR, Gazelle and BO-105 helicopters, jeep
guidance & command link	laser beam rider SACLOS	laser beam rider SACLOS	laser beam rider SACLOS	laser beam rider SACLOS, lock on before launch	1&2: SACLOS wire -3 SACLOS IR	SACLOS wire	SACLOS wire
total weight (kg)	23-30.5 by system	24.3/28	60/ 27 missile	45 missile	31.2-31.6 w/FLIR	22.6-28.1 missile	32 missile
sights	vehicle day sight	gun/vehicle day sight	day sight 3000 FLIR	TV, IR autotracker FLIR*	7x day sight 2000 Mira FLIR	13x day sight 3000+ FLIR	vehicle sights Castor FLIR*
basic load	4 MT-12, 5-6 tanks 8 BMP-3	8	4 tripod	12	1 2-man crew 2 3-man crew	12 M901, 7M2A2, 12 M3 CFV	18 on AMX-10 HOT
warheads	HEAT/ tandem HEAT Kan	HEAT/tandem HEAT	tandem HEAT, thermobaric	tandem HEAT	HEAT, tandem HEAT -2, -3	HEAT, tandem HEAT ITOW, -2, -2A, EFP	HEAT HOT tandem HEAT -2, -3
range(m)	100-4000 -5000 MT-12	100-4000/-5000 2A45M, T-80U, T-90	100-5500	1000-10,000	20-2000/ 20-1920 -2, -3	65-3750 200-3750 TOW-2b	75-4000
time to max range (sec)	15	11.7/15	22	23, 8000 m	12.5	21	17.3
penetration	650/700 Kan (can replace others)	800/700 behind ERA, -b 870/800 behind ERA	1200/950	1050	600 Milan 880 -2, -3	600, 800, 900, 900+ 100+ top-attack	800 900 -2, 1000 -3
remarks * upgrade available	Fired from the halt	Fired from the halt		Maximum airborne-target speed 800 kph.		Tow 2b is fly over, top attack explosive-formed penetrator (EFP)	



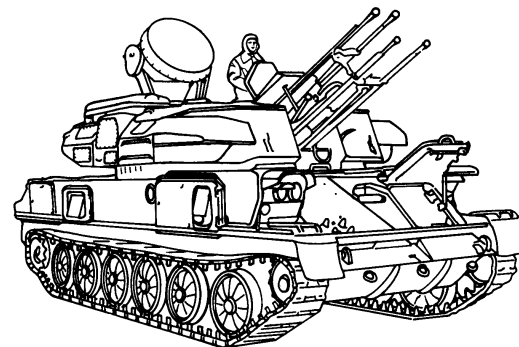
100-mm Towed KS-19 M2 Anti-aircraft Gun



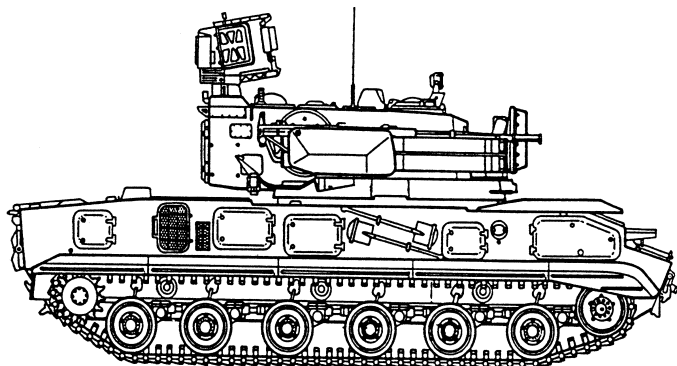
57-mm Towed S-60 AA Gun



23-mm ZU-23 Towed AA Gun

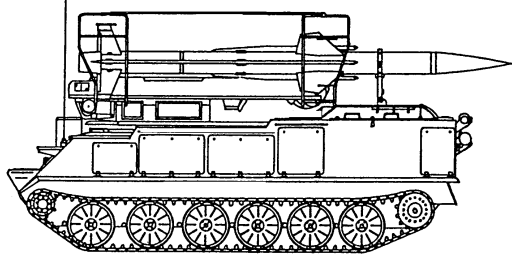


23-mm ZSU-23-4 SP AA Gun

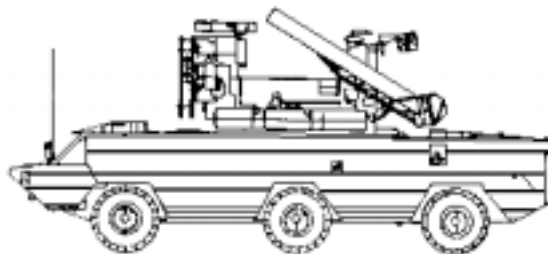


30-mm 2S6M SP AA Gun/Missile System

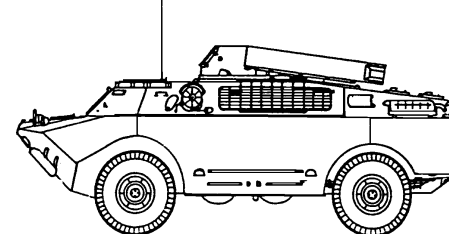
Air Defense Guns and Gun/Missile Systems	100-mm KS-19 M2	57-mm S-60	23-mm ZU-23	23-mm ZSU-23-4	30-mm 2S6M
number of guns	1	1	2	4	4
prime mover	AT-S or AT-T artillery tractor	Ural -375D, Ural 4320, or other medium tactical truck	GAZ-66 light truck, MTLB-T, BMD-2	SP tracked vehicle	SP tracked
crew	15	7	5	4	4
weight (mt)	11.0	4.5	0.95	20.5	34.0
length (m)	9.3	8.5/8.84 travel/firing	4.57/4.6 travel/firing	6.5	7.93
width (m)	2.32	2.08/6.9 travel/firing	1.83/2.4 travel/firing	3.1	3.24
height (m)	2.2	2.37/6.02 travel/firing	1.87/1.28 travel/firing	2.6 radar down/3.75 radar up	3.36 radar down/4.02 radar up
emplacement time (min)	7	1/3-20 with radar	15-20 sec	fire on move	guns fire on move
displacement time (min)	6	2/5-15 with radar	35-40 sec	fire on move	guns fire on move
off-carriage/onboard radar(s)	SON-9, SON-9a/FIRE CAN fire control radar (off-carriage)	SON-9, SON-9a, or FLAP WHEEL FC radar (off-carriage)		GUN DISH: 20 km detection, 10 km automatic tracking	HOT SHOT surveillance 18-20 km 1RL144 target tracking 16 km
fire control	PUAZO fire director, PO-1M telescope, PG panoramic D-49 rangefinder	PUAZO fire director, AZP-57 DF telescope, D-49 rangefinder	KV-L 1x reflex sight direct fire telescope	RPK optical-mechanical computing sight	1A29M stabilized 8x optical sight IFF
elevation (degrees)	-3 to 89	-4 to + 87	-10 to 90	-4 to 85	-10 to 87
traverse (degrees)	360	360	360	turret 360	360 turret
rate of fire, cyclic/practical (rpm)	NA/10-15	105-120/70	1600-2000/400	3200-4000	4800/
reaction time (sec)	30	4.5	5-7	12-18	6-12
range, AA range (m)	4000	4000	2500	2,500	4000
with radar	12,600	6000			4000
vertical maximum	14,600	7400 self-destruct fuze/8800	1500	3500 self-destruct fuze/5100	3000
ground targets			2000	2000	4000
unit of fire	100	200	2400		
basic load on vehicle	NA	16 on gun	NA	2000	1904/8 missiles
ammunition types	AP-T, APC-T, Frag-HE	Frag- HE-T APC-T	HE-I HEI-T API-T	HE-I HEI-T API-T	AP-T HE-I Frag-T
armor penetration (mm)	200m@ 500, 185 @1000m, 0°	96 APC-T at 1000 m	25 @ 500 m, 20 @ 1000m, 0°	25 @ 500 m, 20 @ 1000m, 0°	25 @ 1500m, 60°
remarks				TKH-ITC cmdr night sight	SA-19 missile SEE SAMs page 2S6 must halt to launch. 2S6 can track targets with 5 modes, including optical SACLOS.



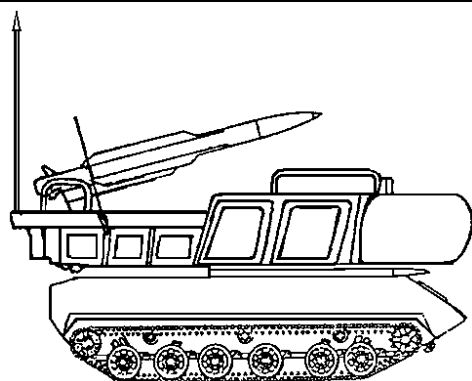
SA-6 GAINFUL



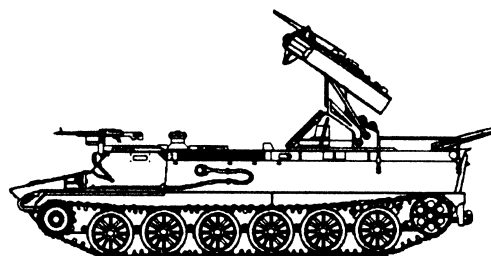
SA-8b GECKO



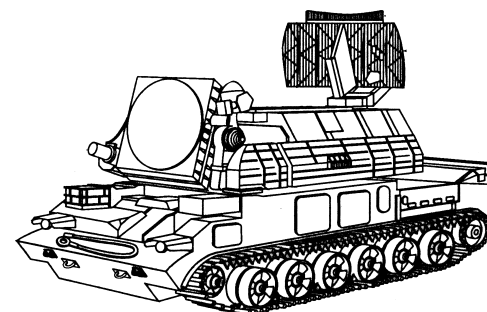
SA-9b GASKIN



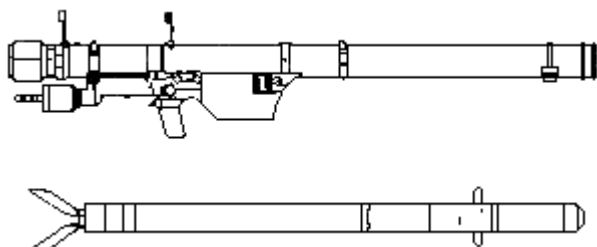
SA-11 GADFLY



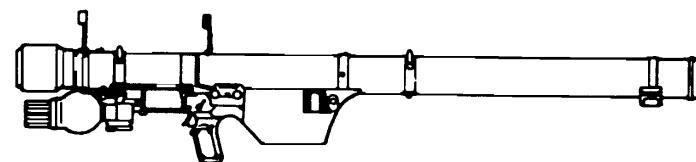
SA-13 GOPHER



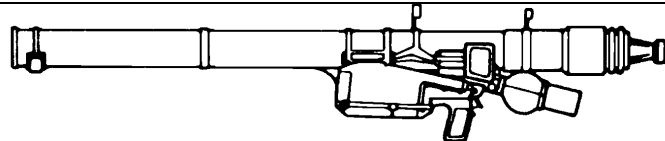
SA-15 GAUNTLET



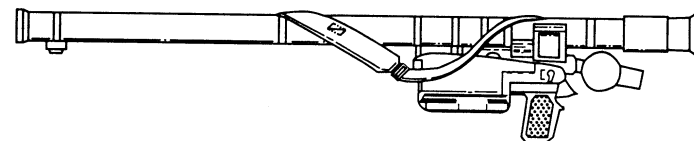
SA-7b GRAIL



SA-14 GREMLIN

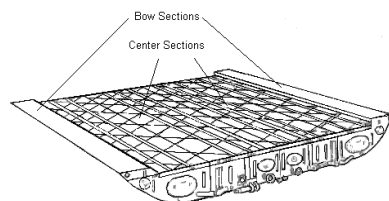
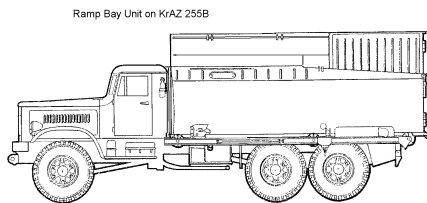


SA-16 GIMLET

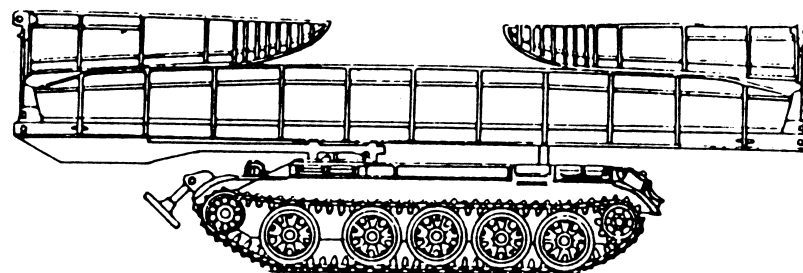


SA-18 GROUSE

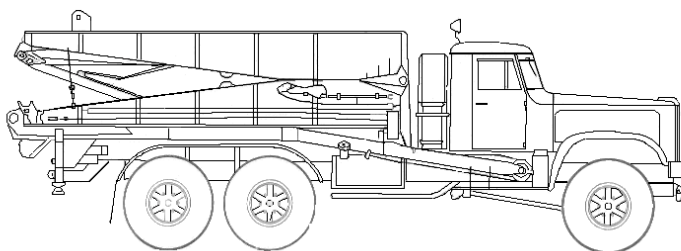
Surface to Air Missiles (SAMs)	SA-6 GAINFUL	SA-7b GRAIL	SA-8b GECKO	SA-9b GASKIN	SA-11 GADFLY (BUK-M1)	SA-13 GOPHER	SA-14 GREMLIN	SA-15 GAUNTLET	SA-16 GIMLET	SA-18 GROUSE	SA-19
range, slant range (m)	4000-25,000	500-5500	200-15,000	800-5000-7000	3000-35000 at 100m*	800-5000-7000	600-6000	100-12,000	600-4500-5200	500-6000	2500-8000 fast -10,000 heli
altitude, (m)	50-15,000	18-4500	10-12,000	10-3500	15-22000	10-3500	50-6000	10-6000	10-3500*	10-3500	15-3500
basic load	3	1	6	6	8	8	1	8	1	1	8
launch rails	3	1	6	4	4	8	1	8	1	1	8
reload time (min)		6-10 sec	5	5	13	3	25 sec	10	2.5 sec	10 sec	16
fire control	EO sights, radar semiactive homing RF prox fuze	Passive medium IR guidance	LLTV /optical Radar command line-of-sight (CLOS)	Passive IR homing	TV optical tracker Missile inertial guidance and radar semiactive homing RF intelligent fuze	EO IR sights* IR homing, cooled seeker, dual frequency	passive IR homing	TV, 20 km range Radar CLOS RF prox fuze	passive 2-color IR homing	passive IR homing	Radar, optical sight, radar CLOS/ SACLOS
radar (s)	STRAIGHT FLUSH (FIRE DOME SA-16b) target acq LONG TRACK surveillance, THIN SKIN height finding	None	LAND ROLL target acquisition 20-30 Monopulse for target tracking 20-25	FLAT BOX Passive radio DF, 30 km 360° coverage (on 1 TEL per platoon)	SPOON REST early warning radar SNOW DRIFT target acquisition Detection 85 km FIRE DOME fire control radar	SNAP SHOT ranging 10 km * DOG EAR target acq 80 km detection 35 km tracking	none	EO TV 20 km range H-band Doppler target acq radar K-band phased array tracking,	none	none	HOT SHOT surveillance range 18-20 km 1RL144 target tracking range 16 km
emplace/displace time (min)	up to 5/INA	5-10 sec reaction			5/5, 20 sec after move	.67/<1	14 sec reaction	5/5		6-7 sec reaction	6-12 sec reaction
support vehicles	Each battery has two reload vehicles, each with three missiles All radars are off-TEL	None	Two BAZ-5937 resupply/transloaders carrying 18 missiles, each for a battery of 4 TELARs.		9S470M1 command post, can track up to 15 targets, assigning six in battery. Battery can guide 12 missiles at 6 targets at a time 3 9T229 missile transporters/ btry	9V915M maintenance 9V839M test vehicle DOG EAR on MT-LBu		Rangir battery command post	none	none	2F77M resupply 1R10-1M repair/maint truck MTO-ATG-M1 maint shop 9B921 auto test station
chassis	modified PT-76 tracked	None	BAZ-5937 6x6 wheeled	Modified BRDM-2 4x4 wheeled chassis	GM-569 SP tracked	MT-LB	none	tracked GM-355	none	none	GM-352M tracked vehicle
speed, road	45		80	100	65	61.5		65			65
water	NA		8	10	NA	6		NA			NA
road range (kg)	250		500	750	500	500		500			500
crew	3	1	3	3	4	3	1	3	1	1	4
remarks	Targets are low to medium altitude aircraft.	manportable air-defense system (MANPADS)	TEL can assign 2 missiles/target		Range is 100,000 with target at 1-25 km altitude. TEL carries 4 missiles on transport cradle	FLAT BOX B passive radio DF 30 km FLIR available	MANPADS	Can engage 2 targets at once	max altitude: 2000 fast approach 3000 show approach 2500 fast recede		



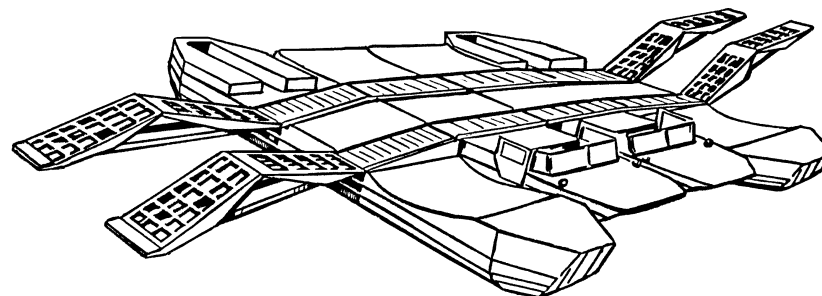
PMP Heavy Folding Bridge



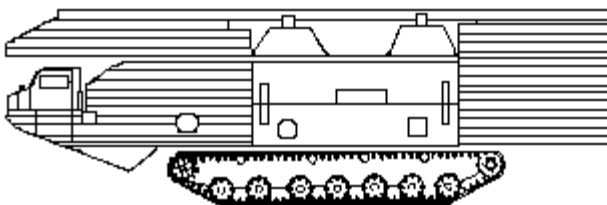
MTU-20 Armored Vehicle Launched Bridge (AVLB)



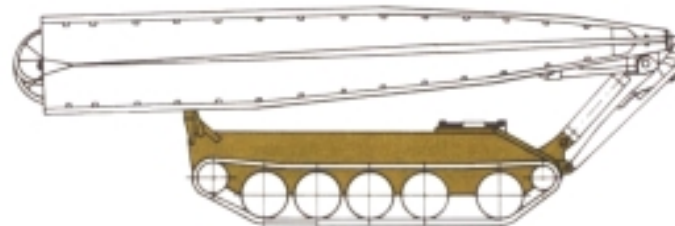
TMM-6 Truck Mounted Scissors Bridge



GSP Heavy Amphibious Ferry



PMM-2 Ferry

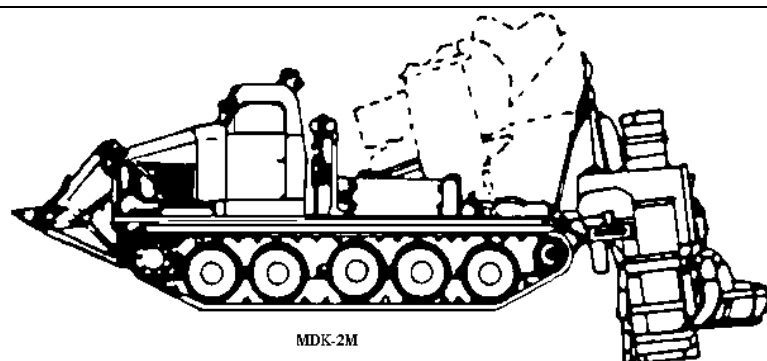


MT-55A

Bridges	PMP Heavy Folding	MTU-20 AVLB	TMM-6	GSP Ferry	PMM-2 Ferry	MT-55A
assembly data	bridge bay/ ramp bay					2 folded ramps
spans in set	32 pontoons+4 ramps	1	4	2	1/ ferry	1
length of span (m)	see table below	18	10.5, 5.2 folded	12.63 each	3.5 est	9
length of bridge (m)	see table below	20	68	20	13.5 est	18
roadway width (m)	see table below	3.3	4	3.54		3 est
capacity (mt)	see table below	50	60	50	50	50
assembly time (min)	see table below	5	20-60 day, 30-80 night	3-5		2
working party	see table below	2	12	6		crew of 2
remarks			Can span up to 100 m with only TMM-6, 125 m combined with MTUs.			

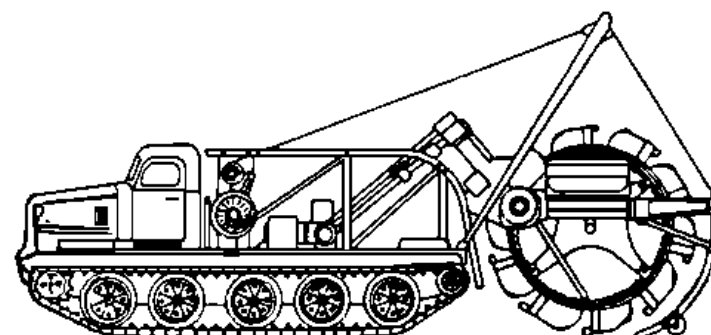
PMP raft assembly data	40-ton	60-ton	80-ton	110-ton	170-ton
spans in set (pontoons)	2	3	4	5	8
length (m)	13.5	20.3	27	39.3	59.6
roadway width (m)	6.5	6.5	6.5	6.5	6.5
assembly time (min)	8	10	12	15	20 est.
working party	6	9	12	18	27 est.

Amphibious Vehicles	K-61	PTS-M	PKP	PTS-2
weight, empty (kg)	9500	15000	3600	
loaded, land	12500	22500	8600	
loaded, water	14500	30000	8600	
payload, land	3000	7500	5000	12000
water	5000	15000	5000	12000
troops	70	50	NA	70
cargo bay dimensions (m)	5.4 X 2.8			
length (m)	9.1	11.5	10.3	11.5
width (m)	3.1	3.5	2.82	3.3
height (m)	2.1	3.4	2.2	
speed, land (kph)	36	40	towed	
water (kph)	10	15	towed	
cruising range, land (km)	170	42.5	towed	
slope, empty (degrees)	42	30	towed	
loaded (degrees)	15	10		
step (m)	0.65	0.65		
trench (m)	3	2.5		
crew	2	2	NA	2
remarks	12 K-61s can transport a battalion of artillery with prime movers.	Can carry 12 litters.		

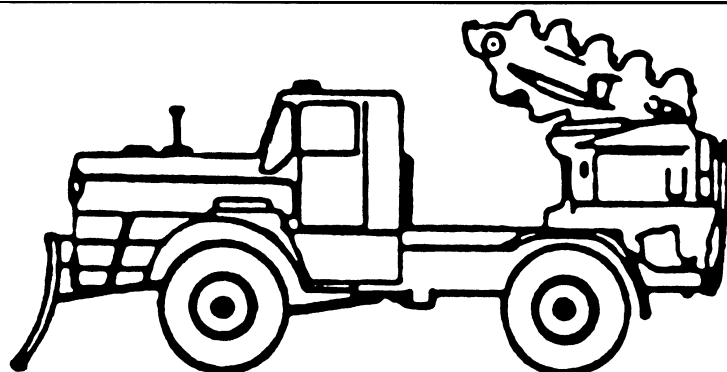


MDK-2M

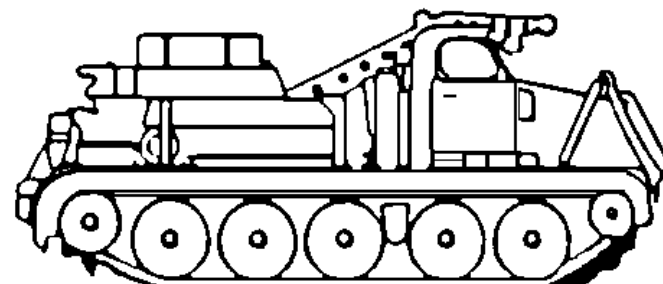
MDK-2M ditcher



BTM-3 ditcher

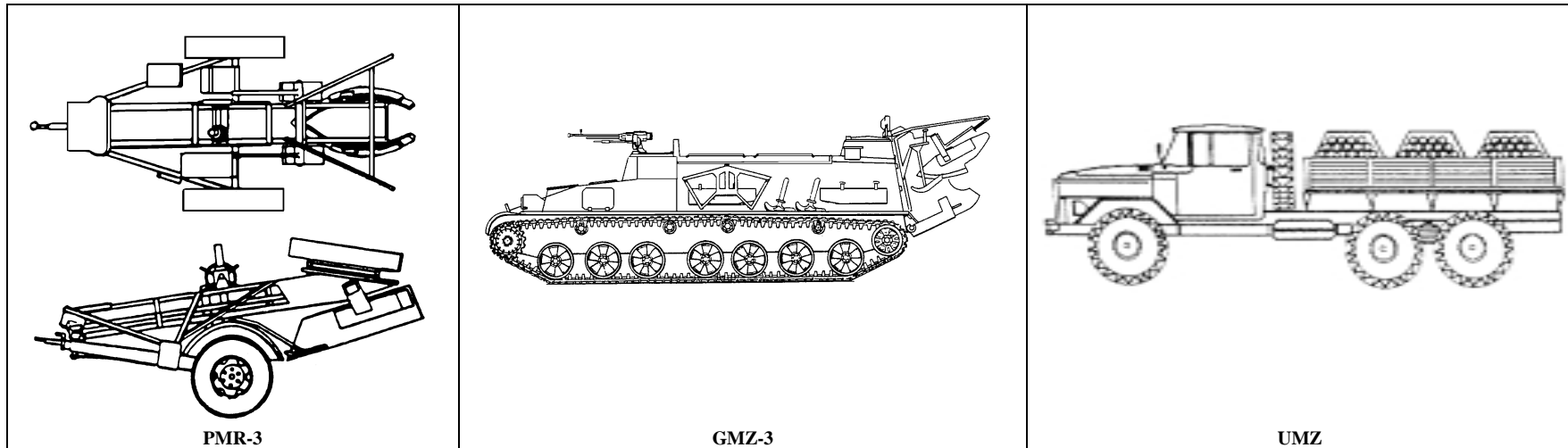


PZM-2 ditcher

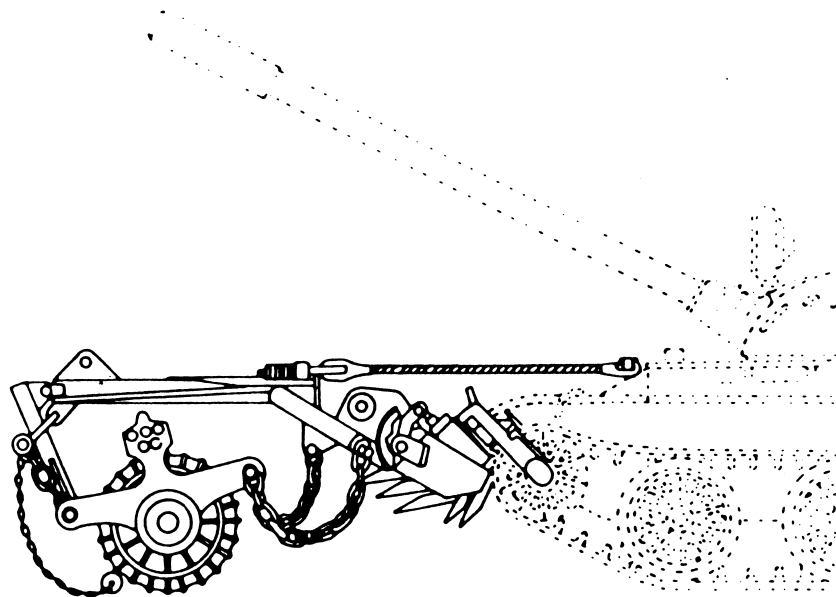


BAT-M route clearer

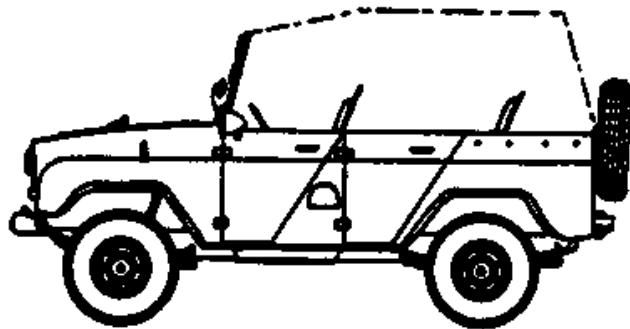
Earth Movers	MDK-2M ditcher	MDK-3 ditcher	BTM-3 ditcher	PZM-2 ditcher	BAT-2 route clearer
digging capacity (m ³ /hr)	120-300	400-500	540	80-250	250, 400 clearing
working speed (m/hr)	200-800		220-600	208	2.3-6.8
vehicle fighting positions per hour	7	12	14	NA	6
digging depth (m), single pass	0.8	1.7	1.5	1.5	NA
maximum	4.5	3		1.5	NA
digging width (m), single pass	4	4	0.6	1.1	NA
maximum	NA	NA	NA	3.5	NA
range (km)	500		500		500
weight (mt)	28		26.7		37.5
crew	2		2		2 + 8
protection	NBC filtration system, but susceptible to small arms fire.	NBC filtration system, bulletproof windows and armor			NBC filtration system, bulletproof windows and armor.
remarks		Not shown. Similar in appearance to MDK-2M.			2 mt crane with 7.3 m reach. 25 mt winch with 100 m of cable.



Minelayer	PMR-3	GMZ-3	UMZ
mine capacity	120 w BTR-152 200 w ZIL 131 350 w URAL-375D	208	11,520 PFM-1 or 720 POM-2 AP mines or 180 PTM-3 AT mines
types	TM-44, TM-46, TM-57, TM-62 series, TM-72, TMD-B	TM-46, TM-57, TM-62 series, TMD-B, MV4-62, MVP-62, MVN-80	PFM-1, -1/S, POM-1, POM-2S, PTM-1S (PGMDM), PTM-3
work rate (kph)	2-3 burying, 4-10 surface laid	6 burying, 16 surface laid	5 minutes from traveling to firing.
mine spacing (m)	3 to 4	5 or 10	variable
burial depth (mm)	up to 200	120 ground, 500 snow	30-120
road speed (kph)		50	80
weight (mt)	1.3	28.5	8.3, 10 loaded
length (m)	5.6	8.62	7.1
width	2	3.25	3
height	2.7	2.7	2.5
crew	6	3	2
remarks		Self-entrenching. Container reload time 15-20 minutes. Engine smoke generator. Auxiliary weapon is 7.62-mm PKT MG.	6 launchers with 30 launch tubes each on the bed of a ZIL-131 truck. 1, 2 or 3 row minefields are laid by positioning the canisters. 1-row field is 600-5000 m long. 3-row field is 150-1,500 m.

**KMT-5M**

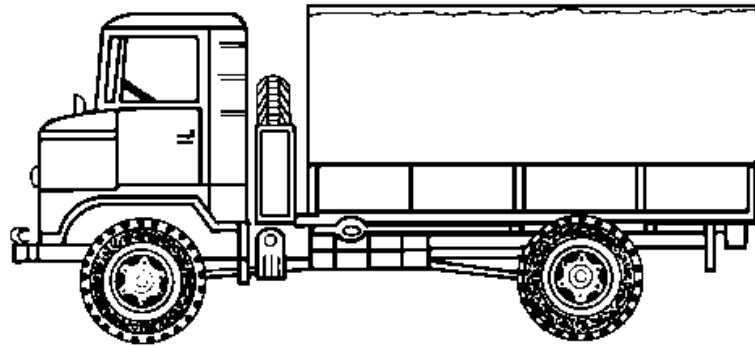
Mine Clearers	KMT-4	KMT-5M	KMT-6M	KMT-7
operating speed (kph)	6-12	6-12	6-12	
cleared lane width (mm)		810 X 2		
depth of clearance (mm)	100	100	100	
installation/removal time (min)	15-20/5-10	30-45/8-13	15-20/5-10	
weight (ton)		7.5		
weight on one wheel (ton)		0.5		
platforms	T-54, T-55, T-62	T-54, T-55, T-62, T-64	T-54, T-55, T-62	
remarks	Three plows may be carried on a ZIL-131 3.5-t truck.	The KMT-5 is a KMT-4 mineclearing plow with a new roller set. Each vehicle gets one plow and one roller, but both cannot be used at once. 1 roller carried by KrAZ-255B 7.5t truck.	Three plows may be carried on a ZIL-131 3.5-t truck.	The replacement for the KMT-5.



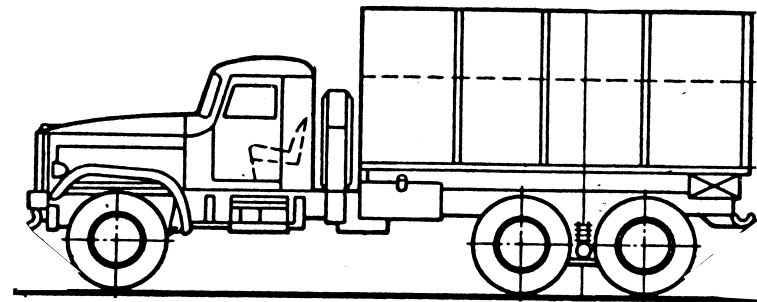
UAZ-469 light

No line drawing available.

UAZ-452 0.8t



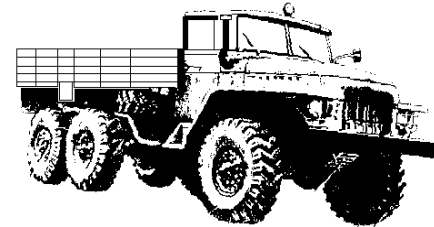
GAZ-66 2t



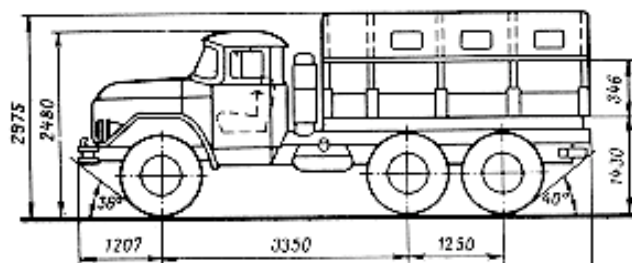
ZIL-151 2.5t



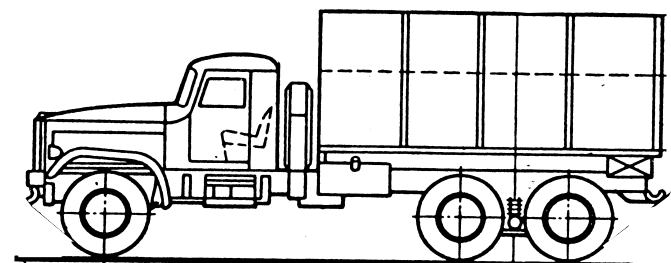
ZIL-157 4.5t



URAL-375 4.5t

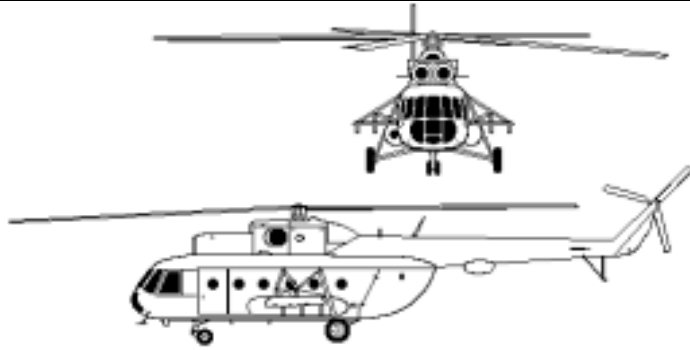
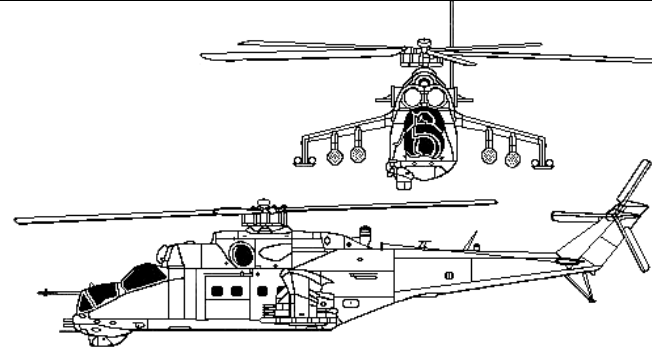
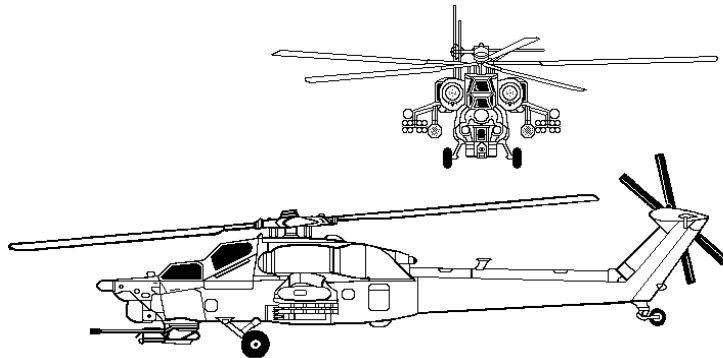
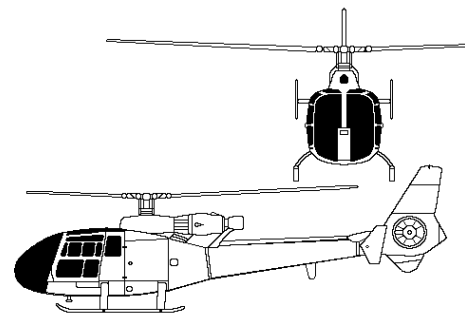
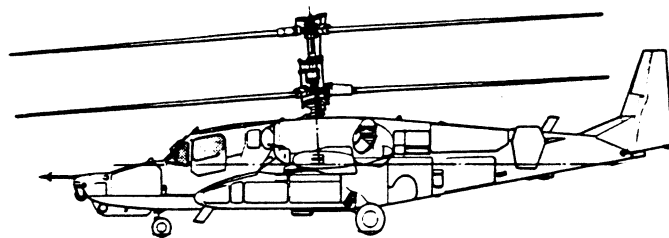
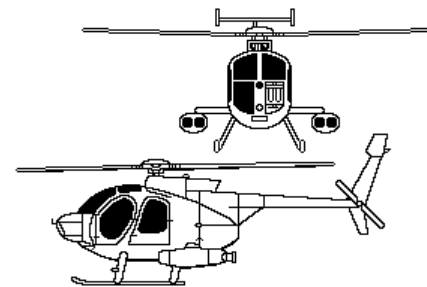


ZIL-131 3.5t

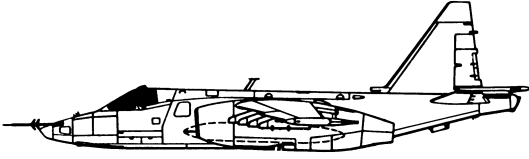
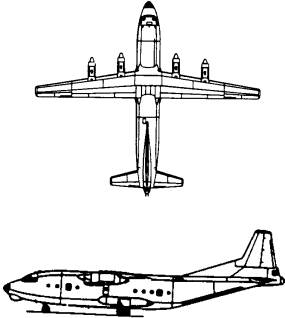
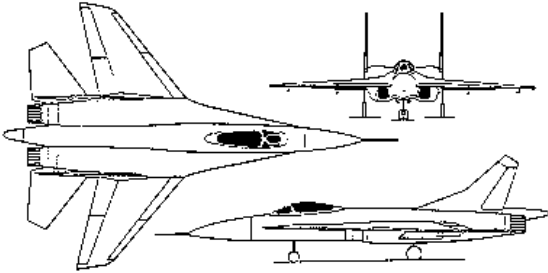


KRaz-255 7t

Trucks	UAZ-469 light	UAZ-452 0.8t	GAZ-66 2t	ZIL-151 2.5t	ZIL-157 4.5t	URAL-375 4.5t	ZIL-131 3.5t	KRaZ-255 7t
payload, truck + towed (mt)		0.8	2	2.5	4.5	4.5	5+5 road, 3.5+4 off road	7.5+30 road 10 towed off road
speed (kph)	120	95	95	65	65	75	80	70
range (km)	460	430	875	650	510	750	850	850
drive formula		4X4	4X4	6X6	6X6	6X6	6X6	6X6
ground clearance (mm)	300						333	360
ford (m)	0.7						1.4	1
grade (degrees)	31						31	30
cone index, truck (fine/coarse grained)	22/26						18/16	
cone index, truck & trailer (fine/coarse grained)							24/39	
weight (mt)	2.29	2.6	5.8	5.6	10.5	13.2	6.46	19.7
loaded area (m)							3.6x2.322x0.346	4.56 x 2.5
Dimensions L x W x H (m)							7.04x2.5x2.48	8.7x2.8x3
remarks							Cab controlled tire inflation system. 70-m cable winch 4500-kg pull.	

**Mi-8/Mi-17 HIP****Mi-24 HIND****Mi-28 HAVOC****Gazelle****Ka-50 HOKUM****MD-500 Defender**

Rotary Wing Aircraft	Mi-8 HIP	Mi-17 HIP H	Mi-24 HIND D/E/F	Mi-28N HAVOC	Gazelle SA-341 (Fr)	Ka-50 HOKUM	MD 500 (US)	UH-1H (US)	BO-105 (GE)	Lynx (UK)
								Not Shown	Not Shown	Not Shown
mission	utility, transport	utility, transport	Attack, close support	Attack, close support	Light attack utility	Attack, close support	general purpose, light attack	Utility	general purpose light attack	general purpose attack
gun	12.7-mm or 2x7.62-mm 23-mm gun pods	12.7-mm or 2x7.62-mm 23-mm gun pods	30-mm HIND F 4-bbl 12.7-mm HIND D/E	23-mm gun pods 30-mm	2 x 20-mm 12.7 or 2x7.62-mm gun pod	2A42 30-mm cannon 2x23-mm gun	12.7 or 6x7.62-mm gun pod 7.62-mm	7.62-mm	12.7 or 7.62-mm gun pod	2 x 20-mm 12.7 or 2x7.62-mm gun pod
ATGM	4-6 AT-2c, AT-3c	4-6 AT-2c, AT-3c	4-12 AT-2c HIND D AT-6b, c, Ataka HIND E/F	16 AT-6b,c Ataka	AT-3, HOT or AS-11/AS-12	12 AT-16 Vikhr	TOW Hellfire		HOT TOW	2xHOT, 2xHellfire, or 2xTOW
rockets	57-mm 80-mm	57-mm 80-mm	57-mm or 80-mm	57-mm 80-mm	57-mm, 68-mm, 2.75"	80-mm	70-mm, 2.75"		SNIA 50-mm 68-mm/70-mm	68-mm/70-mm
bombs	250-kg, 500-kg	250-kg, 500-kg	250-kg, 500-kg	500 kg		250-kg, 500 kg				
AAM				2x AA-16 2x AA-18	Matra Mistral, SA-7	AA-11 Archer	Stinger		Stinger	2xAAM pod
take-off weight (kg), normal	11,100	11,100	11,100		2000	9800	1361	4100	2380	2578
maximum, hovering take-off	12,000	13,000	12,000	10,400		10,800	1610	4309	2400	4535
service ceiling (m)	3500	5000	5500		4100	7000	4635	3840	4203	3538
speed maximum at sea level (kph)	230	260	335	300	280	310	221	229	241	260
range, normal payload (km)	460	495	480	470 1100 w/drop tanks	710	455	540	465	318	540
ferry	950	950	1050				1342			1342
crew	3	3	2	2+1	1 or 2	1	2	2	2	2
passengers	24	24	8		2		2	11	3	10
remarks	Troops can fire personal weapons through windows. 4 external hard points.	Improved version of Mi-8MT, upgraded engines, 6 external hard points		This system is not operationally fielded in any armed force.		Armored cockpit withstands 23-mm fire and windscreen withstands 12.7-mm fire.	MK19 or 75 40-mm automatic grenade launcher may be used.	Not shown.	Not shown.	Not shown.

									
SU-25 FROGFOOT			An-12/CUB			Su-27 Flanker B			
Combat Aircraft	An-12 CUB	SU-25 FROGFOOT	SU-27 Flanker B	Mirage 2000 (FR)	F5E/RF5 (US)	A4 (US)	E2C (US)	C130 (US)	P3 (US)
Mission	Medium Transport Aircraft	CAS	Fighter/interceptor, fighter bomber variant	Interceptor Fighter Multirole	Attack	Attack	Early warning		ASW/ maritime patrol
Gun(s)	NR-23 23-mm in tail turret	GSh-30-2 30-mm (250 rounds), AO-17a 30-mm pods	GSh-301 30-mm cannon	2xDEFA 544 or 2x 30-mm pods	2 x 20-mm	2 x 20-mm Mk 12			
ATGMs		16x AT-16 or Ataka, Su-25T				*			
Rockets		57-mm S-5 pod, 80-mm S-8 pod (up to 8 pods)	80-mm S-8 or 120-mm S-25	68-mm MATRA LR F4 or 100-mm		*			2.75" LAU-68A/69A
Air-to-Surface Missiles		AS-7, AS-10, AS-11, AS-14, AS-17		ARMAT, EXOCET, AS, BOL, MATRA 530 D or F,		*			HARPOON
Air-to-Air Missiles		AA-2, AA-8 AA-10	R-27, R-73, AA-10, AA-11	MATRA or MAGIC	AIM-9 Sidewinder	AIM-9 Sidewinder *			AIM-9 Sidewinder
Bombs		100-kg, 350-kg, 500-kg (up to 4000 kg)	100-kg, 250-kg, 500-kg	18 x 250 kg	< 7000 lbs.				Mk 46, 50, 54, 82, mines and depth bombs
speed, max at altitude/sea level/attack	775/585	?/970/690 kph	2500/1345	2.2/2.1 mach	1.6 mach	0.9 mach/ 1163 kph	626 kph	602 kph	
combat radius (km)	1500-1800	495	1125 1950 w/tanks	1650		575		1900	2494
payload, cargo (kg)	7980-16,070							19052 kg	
payload, combat-equipped troops	60							92	
payload, paratroops	90							64	
Remarks	Can operate from dirt strips.	SU-25M: antitank SU-25UB: trainer Ceiling 10,000 m 4344 kg max payload 6.5 g limit		All weather Ceiling 16,460 m -9 to 13.5 g limit 9 hardpoints Not shown.	Not shown.	Ceiling 12200 m, 4 pylons for bombs, rockets, ASMs & gun pods Not shown.	Ceiling 11275 m, Tracks 2000 targets Not shown.	Ceiling 10,006 m Not shown. Can carry 74 stretchers.	13 pax Not shown.

RADAR

BATTLEFIELD SURVEILLANCE RADAR	CARRIER	FREQUENCY	RANGE (KM)	
			<u>PERSONNEL</u>	<u>VEHICLE</u>
BIG FRED	MTLB (M1975)	34.55-35.25 Ghz	12-15	20+
BUZZ STAND	PSNR-1 (MAN-PORTABLE)	9.66 Ghz	5	10
SMALL FRED	PRP-3/4 (BMP-1 VARIANT)	36.2-37 GHz	7-12	20+
TALL MIKE	BRM-1k (BMP-1 VARIANT)	9 Ghz	3	12

<u>AIR DEFENSE RADAR</u>	<u>ASSOCIATED SYSTEM</u>	<u>ROLE</u>	<u>RANGE (KM)</u>	
			<u>TYPE</u>	<u>DISTANCE</u>
BILL BOARD	SA-12	surveillance		10-250
FIRE DOME	SA-11	fire control	guidance altitude	3-32 15-22
GUN DISH	ZSU-23-4	fire control		20
HAT BOX	SA-13	range		INA
HOT SHOT	2S6 / SA-19	fire control	acquisition tracking	18 13
LAND ROLL	SA-8	fire control	acquisition guidance tracking	30 12+ 20-25
LONG TRACK	SA-6 / SA-8	acquisition		150+
LOW BLOW	SA-3 / SA-4	acquisition		110
PAT HAND	SA-4	fire contrl		INA
SCRUM HALF	SA-15	fire control	acquisition	25
SNOW DRIFT	SA-11	fire control	acquisition tracking	23-85 20-70
SPOON REST	SA-11	acquisition		INA
STRAIGHT FLUSH	SA-6	fire control	acquisition tracking altitude	60-90 28-75 10
THIN SKIN	SA-6 / SA-8	height finder		250

<u>COUNTERMORTAR COUNTERBATTERY RADAR</u>	<u>ROLE</u>	<u>RANGE</u>		<u>REMARKS</u>
		<u>TYPE</u>	<u>DISTANCE with accuracy (km)</u>	
AN/TPQ-36 (US)	Countermortar/Counterbattery	Mortar Artillery MLRS	12 12 24	Location is completely automatic and coordinates of weapon determined before round lands. Normal 90° sector can be modified to 360° for insurgency operations.
AN/TPQ-37 (US)	Countermortar/Counterbattery	Mortar Artillery MLRS	30 30 50	AN/TPQ-36 & -37 complement each other to provide artillery counterfire against mortars and close-in artillery. Together they are known as the Firefinder system.
Zoopark-1 1L219	Countermortar/Counterbattery	Mortars Howitzers MLRS TBM	81 mm mortar 12 120 mm mortar 15 105 mm howitzer 8 155mm howitzer 10 122 mm rocket 12 220 mm rocket 20 theater missile 35	High-technology Russian system features air traffic control capability, GPS, high-mobility tracked chassis, and operation form a prime-propulsion-driven generator.
ARK-1M Rys	Countermortar/Counterbattery	Mortars Howitzers MLRS TBM	13 8 25 30	Primarily used to locate tube artillery, mortars and multiple rocket launchers. The system also calculates impact errors of OPFOR rounds and provides automatic correction parameters.

SIGNALS INTELLIGENCE AND DIRECTION-FINDING SYSTEMS.

SYSTEM	SIGNALS	INTERCEPT RANGE
Intercept Receiver	VHF-UHF	40 km (LOS)
Radio Direction Finder	VHF-UHF	40 km (LOS)
	HF groundwave	80 km
	HF skywave	unlimited
Radar Direction Finder		25 km

CHAPTER 5: THE OPFOR IN THE OFFENSE

INTRODUCTION.

This chapter provides you the necessary tactics for the OPFOR to successfully conduct an offense. It does not cover all aspects of the OPFOR's offensive principles, planning and execution. However, it does provide the critical concepts the OPFOR follows when planning such operations.

5-1 FORMS OF TACTICAL MANEUVER.

Maneuver is a basic component of combat. **It is an organized movement during combat that puts the OPFOR in a more advantageous position than the BLUFOR.** The OPFOR uses maneuver to seize and hold the initiative and defeat the BLUFOR. The most common forms of OPFOR maneuver are **frontal, close, deep, and double envelopment.**

a. Frontal Attack. The frontal attack is directed against the BLUFOR's frontline forces. Its goal is to penetrate BLUFOR defenses along single or multiple axes. Its success depends on superiority of forces and firepower. An OPFOR unit conducting a frontal attack attempts to create openings for subsequent exploitation. **The frontal attack, by itself, is the least preferred form of maneuver.** Normally, it is used in combination with a close or deep envelopment. A frontal attack may be appropriate when the OPFOR has the element of surprise, and may be used to fix BLUFOR defenses while other OPFOR units maneuver to attack from the flank.

b. Close Envelopment. A close envelopment is a flanking maneuver that strikes BLUFOR units in their flank or rear at a relatively shallow depth. The goal of the close envelopment is to **attack the BLUFOR from the flank, avoiding a frontal attack.** Forces conducting the close envelopment and those conducting a simultaneous frontal attack need to coordinate fire support. (See Figure 5-1.)

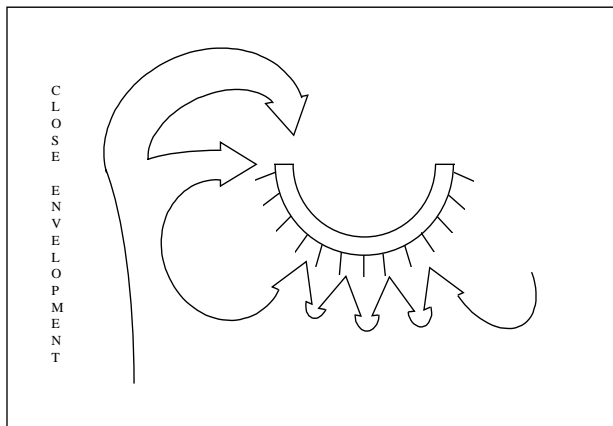


Figure 5-1. Close envelopment combined with frontal attack.

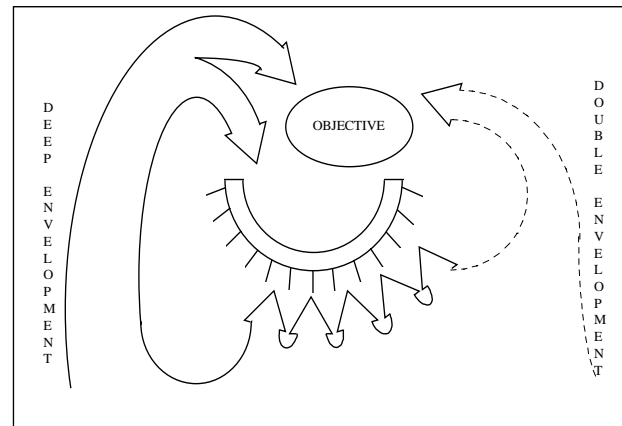


Figure 5-2. Deep envelopment combined with frontal attack.

c. Deep Envelopment. A deep envelopment is a **flanking maneuver executed at a greater depth.** The goal of deep envelopment is either to attack the BLUFOR from the rear or to seize key-blocking positions thereby preventing the BLUFOR's withdrawal and ensuring its destruction. The deep envelopment is conducted in tactical coordination with the forces advancing from the front. (See Figure 5-2.) **Forces assigned to conduct a deep envelopment receive additional fire support.**

In an attack against a defending BLUFOR, a battalion or brigade-sized **forward detachment** could conduct a deep envelopment for a brigade or division; the forward detachment would be inserted through a gap in forward BLUFOR defenses after first-echelon forces in the main attack achieve a penetration. The depth of a deep envelopment for a mechanized infantry or tank battalion can be more than **15 km**. A brigade may conduct a deep envelopment to a

depth of up to **50 km**. That depth can be significantly greater in a meeting battle or in a pursuit of the BLUFOR. The OPFOR may also employ **heliborne forces** for the deep envelopment.

d. Double Envelopment. The OPFOR prefers a **double envelopment**, which can be a combination of two deep envelopments, two close envelopments, or a deep and a close envelopment. It expects to achieve the most success with a deep envelopment of both flanks, encircling the BLUFOR rear. Combining envelopments creates favorable conditions for attacking the BLUFOR's flanks and rear. The OPFOR's goal is to **encircle** BLUFOR groupings, **split** them, and then **destroy** them. Heliborne assault troops can also land simultaneously in the BLUFOR rear, assisting in the accomplishment of a double envelopment. Forces carrying out close, deep, or double envelopments ordinarily maneuver in a march or prebattle formation when BLUFOR resistance is light enough not to require the use of battle formation. The enveloping force can transition from march to prebattle to battle formation as the situation dictates.

5-2 ORGANIZING FOR COMBAT.

The OPFOR organizes for combat by assigning units to function as elements of combat formations. The combat formation corresponds to the situation and facilitates mission accomplishment. It should ensure--

- Successful destruction of the BLUFOR.
- Achievement of the assigned mission.
- A combination of fire, movement, and maneuver in the course of the attack.
- Continuous command and control.

The following paragraphs list several of the key variables involved in OPFOR organization for combat. There is overlap with other chapters, but this information is included to provide better understanding of organizing for combat.

a. Reconnaissance. Maneuver divisions have an organic reconnaissance and electronic warfare battalion, while each maneuver brigade has an organic reconnaissance company. Mechanized infantry battalions (MIBN) have an organic reconnaissance platoon. The location of the reconnaissance objectives and the BLUFOR disposition determine how far in front of their parent organization these OPFOR reconnaissance assets move. In an **attack against a defending BLUFOR**, they would typically reconnoiter the BLUFOR whose destruction is the parent organization's immediate mission; then they would move on toward the depth of the subsequent mission. In the **march**, their purpose is to provide the maximum warning of the BLUFOR, in terms of time and distance and to establish the strength and disposition. They also identify terrain features that could slow the OPFOR rate of advance or hinder the accomplishment of the parent organization's mission.

b. Forward Detachment. A forward detachment is a combined arms force based on a reinforced maneuver brigade or battalion. Forward detachments ensure the unhindered advance of the division or brigade. Divisions commonly establish a brigade-sized forward detachment, or more than one battalion-sized forward detachment, to maneuver ahead of the lead brigades of an advancing division. Although any maneuver brigade can be assigned as a forward detachment, the **OPFOR prefers to use BTR-equipped units as forward detachments** (and advance guards), thus keeping the higher combat power of BMP and tank brigades for the main force. If the situation requires, a battalion or brigade from another unit/formation (e.g., from a second-echelon brigade/division or an adjacent division) may be temporarily attached as a forward detachment.

In the **march**, the forward detachment normally moves ahead of or parallel to the march security elements (advanced guard) of the lead brigades but behind the division's reconnaissance patrols. However, it could also move parallel to the advance guard.

There is no set distance between the forward detachment and the main body. A brigade-based division forward detachment moves **2 to 4 hours** ahead of the parent division's main body; in European terrain conditions, this may translate to a distance of up to **80 km**. A battalion-based division or brigade forward detachment moves **1 to 2 hours** ahead of the parent organization's main body; this translates to **20 to 40 km**.

c. Echelons. The echelonment of combat formations in the offense is based upon the depth and preparedness of BLUFOR defenses, and is intended to build combat power continuously on the line of contact. The OPFOR typically organize forces either in two echelons or in one echelon with a combined arms reserve. In normal terrain, companies and platoons always attack in a single echelon, without a reserve.

When **attacking unprepared or partially prepared BLUFOR defenses**, the OPFOR typically attacks in a single echelon with a reserve. Against more fully prepared defenses, the OPFOR is likely to use a two-echelon formation and a small reserve. Within the division, the pattern of echelonment can vary at each level of command. A division might deploy its brigades in two echelons, while some of the brigades might deploy their battalions in one echelon. The

OPFOR does not consider a three-echelon combat formation to be normal, but sometimes use it when advancing in the mountains, when maneuver is restricted in an advance along a narrow valley.

When **attacking defenses that are weak, lacking in depth, or not well prepared**, divisions, brigades, and battalions normally deploy in a **single echelon** with a small combined arms reserve. They would also use a single-echelon formation when attacking on a secondary axis. When using a single-echelon formation, the commander must keep a combined arms reserve; thus, he retains the ability to influence the battle. **If he commits his reserve, he must create another one immediately.** If the BLUFOR has hurriedly assumed shallow defenses, he will not have a well-prepared defense in depth or strong reserves; and under these conditions, a single echelon may be sufficient to defeat him.

A two-echelon combat formation is typically employed when attacking a defense prepared or at least partially prepared in depth and on the higher commander's main axis. The **first echelon** normally contains the majority of the combat power. Its mission is to destroy the BLUFOR's forward defenses and achieve the immediate mission of the formation/unit/subunit.

At the same time, the OPFOR issue missions to first-echelon forces, he assigns the **second-echelon** force a mission, a route of advance, and a likely line and time for its commitment. During commitment, the second echelon normally passes through gaps or at flanks to avoid passage of lines and intermingling of forces. Specific second-echelon missions can include:

- Conducting a pursuit.
- Destroying bypassed BLUFOR elements.
- Defeating a counterattack.
- Achieving the subsequent mission.
- Completing the missions of successful first-echelon forces that have been rendered combat-ineffective.

Once the second echelon is committed, a combined arms reserve from elements of the first echelon is formed if one had not designated previously. The remainder of the first echelon continues its attack to the degree that it is still able.

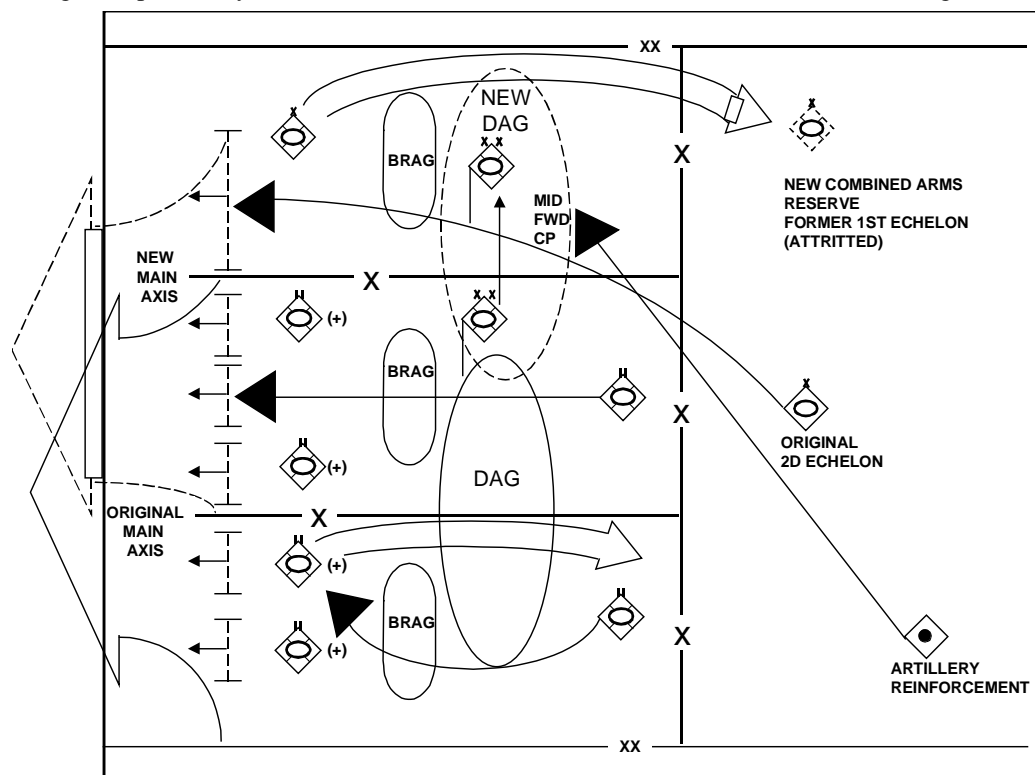


Figure 5-3. Commitment of second-echelon forces.

Although the OPFOR pre-plans deployment lines and time for committing the second echelon, he retains flexibility in implementing them, depending on the progress of the battle. It is important to remember that **a second echelon is an application of additional force, not reinforcement of the first echelon.** However, the second echelon

could be a replacement for a first-echelon force that has been successful, but at the cost of its own combat effectiveness. The second echelon's attack may be on an axis different from the one originally planned. (*Figure 5-3 illustrates one example of the commitment of second-echelon forces.*)

d. Combined Arms Reserve. Divisions, brigades, and battalions can form a combined arms reserve (usually two levels smaller in size, e.g., battalion has a platoon reserve), but only if attacking in a single echelon. The combined arms reserve is small. It is a **contingency force** used to meet unanticipated events and to deal with tasks such as exploiting unexpected success, repelling counterattacks, and covering the flanks of the parent organization.

e. Raiding Detachment. At the tactical level, a raiding detachment is a highly mobile combined-arms unit, usually a reinforced battalion. Reinforced companies and platoons can also conduct raids. The primary mission of a raiding detachment is to destroy or capture important military targets. Such objectives can include an artillery battalion, tactical missile batteries, elements of a reconnaissance-strike complex, a fire support helicopter forward base, a supply base/depot, or a river-crossing site. Its secondary missions can include seizing important terrain and blocking BLUFOR reserves.

f. Enveloping Detachment. Within maneuver battalions and companies, the OPFOR may use an **armored group** as a smaller-scale **enveloping group**. The armored group is a temporary grouping of 4 to 5 tanks, BMPs, BTRs, or any combination of such vehicles. In this role, BMPs or BTRs would deploy without their normally assigned infantry squad on board and fight away from their dismounted troops. The armored group can thus act on an independent axis to attack the BLUFOR flank or establish a blocking force to his rear. It has significant direct-fire capability and serves as a mobile reserve attack force for the battalion or company commander.

5-3 TYPES OF OFFENSIVE ACTION.

The OPFOR will employ three basic types of tactical offensive actions: **attack against a defending enemy**, **meeting battle**, and **pursuit**.

a. Attack Against a Defending Enemy. The **basic form** of offensive combat and the **preferred** OPFOR method of attacking a defending BLUFOR:

- Occurs when the BLUFOR is occupying known defensive positions.
- Can occur in a variety of situations: envelopments, supporting attacks, penetrations of the BLUFOR defense, and exploitation.
- An **attack from a position in direct contact** is most often used when transitioning over to the offense from the defense.
- *Figure 5-4* illustrates the difference between the two methods.

(1) Assembly Areas.

- When attacking from the march, a division would normally occupy an assembly area of between **300 to 600 sq. km** located **60 to 75 km** from the BLUFOR's forward positions.
- Brigades could occupy assembly areas as close as **20 to 30 km**.
- Forces depart assembly areas in march formation and deploy into prebattle and, if necessary, battle formation at designated lines.

(2) Operations Against an BLUFOR Covering Force Area.

- Goal: to prevent having the main body deploy from march formation prior to reaching the designated deployment lines.
- Against a **weak covering force**:
 - Forward detachments of 1st echelon divisions, with strong artillery and air support, responsible for destroying BLUFOR covering force.
 - Main bodies of divisions follow in tactical march column, ready to exploit the forward detachment success.
 - Deployment of lead divisions depends on degree of BLUFOR resistance.
- Against a **strong covering force**:
 - OPFOR would deploy main bodies of 1st echelon divisions from the outset.
 - Use forward detachments and air landings to cut off BLUFOR withdrawals and seize entries into the tactical zone.
 - Divisions may send forward detachments to seize key terrain in the covering force area.

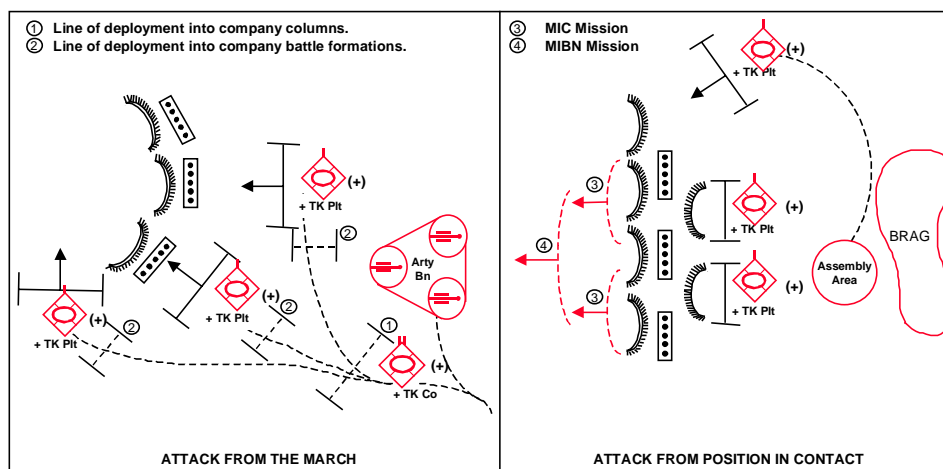


Figure 5-4. Attack against a defending BLUFOR.

(3) **Attack zones and strike sectors.** Figure 5-5 lists average widths of attack zones (frontages) and strike sectors (penetration sectors/sectors of main effort) at the tactical level. The OPFOR's goal is to achieve **overwhelming superiority in the strike sector**. A minimum of 5:1 is desired but more is better.

	Div	Bde	Bn	Co	Plt
Zone of Attack (km)	5-25	3-8	2-3	.5-.8	.1-.2
Main Attack Axis (km)	6-10	2-4	1-2	NA	NA
Distance Between Echelons (km)	15-30	5-15	1-3	NA	NA

Figure 5-5. Typical Attack Zones and Strike Sector Widths.

NOTE: These distances are doctrinal and may vary significantly depending upon the situation.

(4) Force Disposition.

(a) MID and TD.

- In attacking a well-prepared defense, a division will normally attack on a narrower frontage (as narrow as 10 km) with a stronger second echelon (two brigades rather than one).
- A division attacking on an army's supporting axis will normally have a wider frontage than one attacking on the main attack axis.
- Division elements will normally deploy as listed in Figure 5-6.

Division 1 st Echelon	Concentrated to attack on main and supporting axes.
Div. 2 nd Echelon or Combined Arms Reserve	Moves by bounds 15-30 km behind the first echelon until committed.
Brigade Artillery Groups	1-4 km from the forward edge.
Divisional Artillery Groups	3-6 km from the forward edge.
Army Artillery Groups	3-8 km from the forward edge.
Army Rocket Artillery Group	4-8 km from the forward edge.
Divisional Antitank Reserves	Between the 1 st & 2 nd echelons on the main attack axis or on a threatened flank.
Division Main CP	Up to 15 km from the forward edge.
Division Forward CP	Up to 5 km from the forward edge.
Division Rear Area Control Post	Up to 30 km from the forward edge and located near the rear services elements.
Brigade Main CPs	Up to 5 km from the forward edge.
Logistics Units	The divisional medical post, together with repair and evacuation elements, moves behind the first echelon. The rest of the divisional logistical units will be some 5-10 km behind the 2 nd echelon.

Figure 5-6. Deployment Depths.

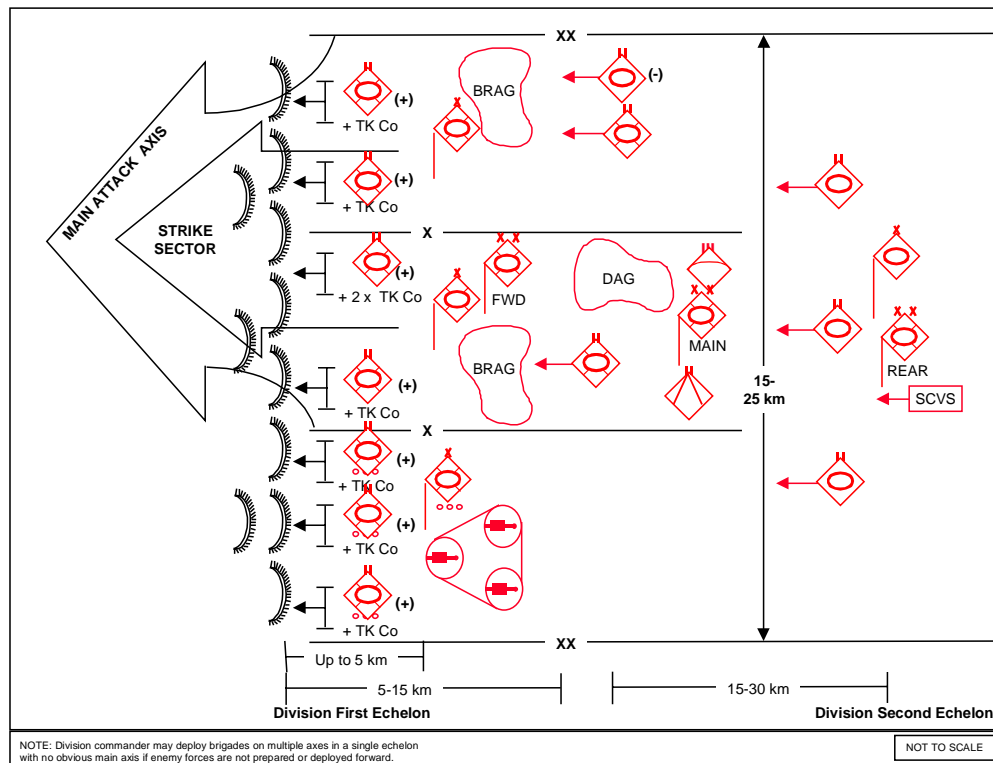


Figure 5-7. MID Attack Against a Partially Prepared Defense (Variant).

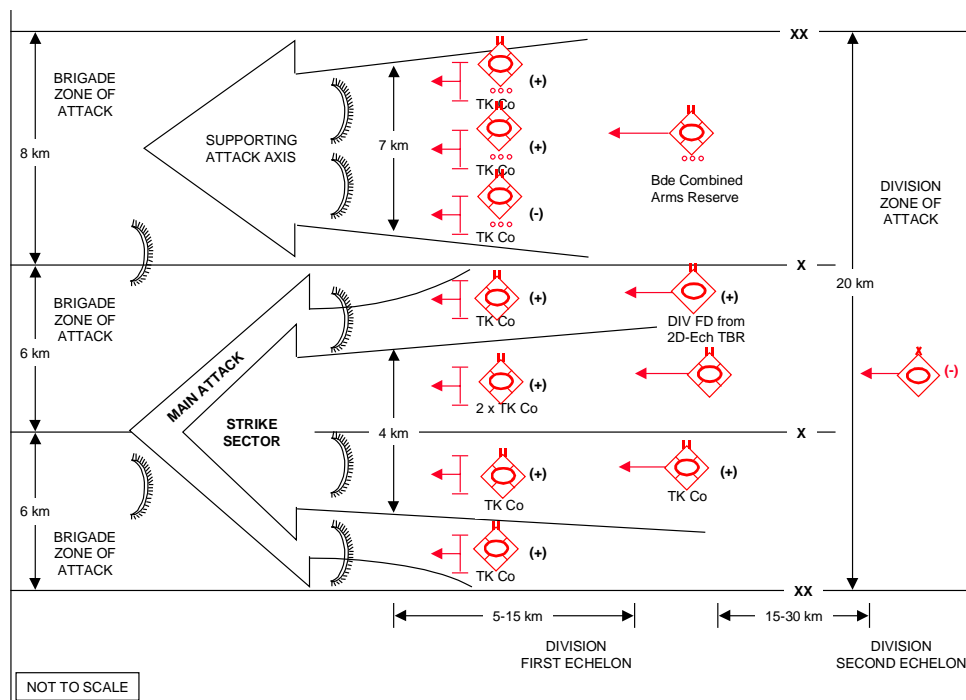


Figure 5-8. MID Attack Against a Partially Prepared Defense (Variant).

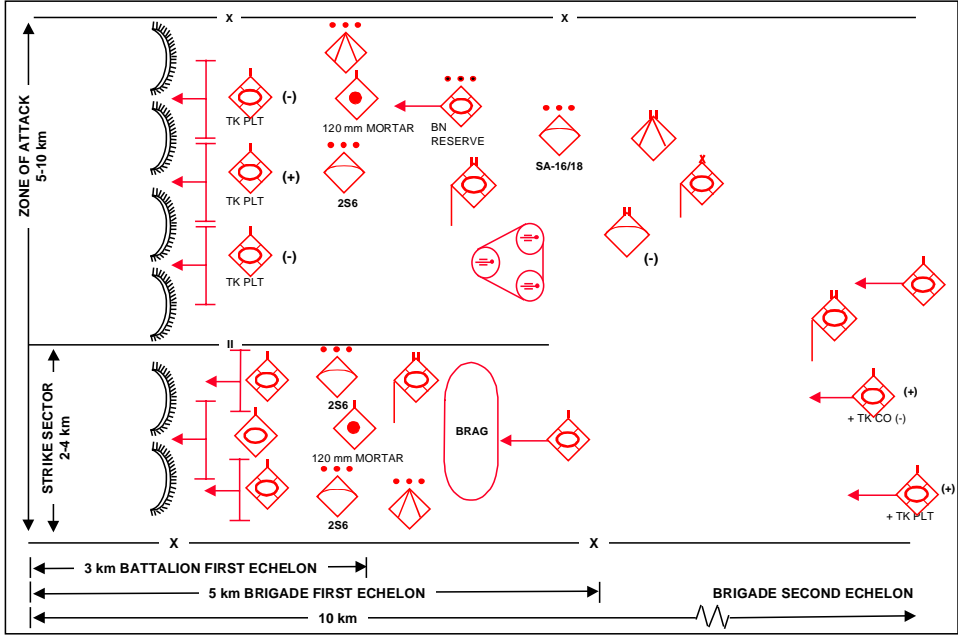


Figure 5-9. MIBR Attack Against a Partially Prepared Defense (Variant)

MIBN and TBN

- Battalion may attack using either one or two echelons.
- When attacking in one echelon, it will normally have a small combined arms reserve (platoon sized).
- A tank company attached to a MIBN normally operates intact.
- Does not have the organic combat support or combat service support required for independent action, except when deployed as a security or enveloping detachment, an **advance guard**, a raiding detachment, a **forward detachment**, or a heliborne or amphibious landing force.

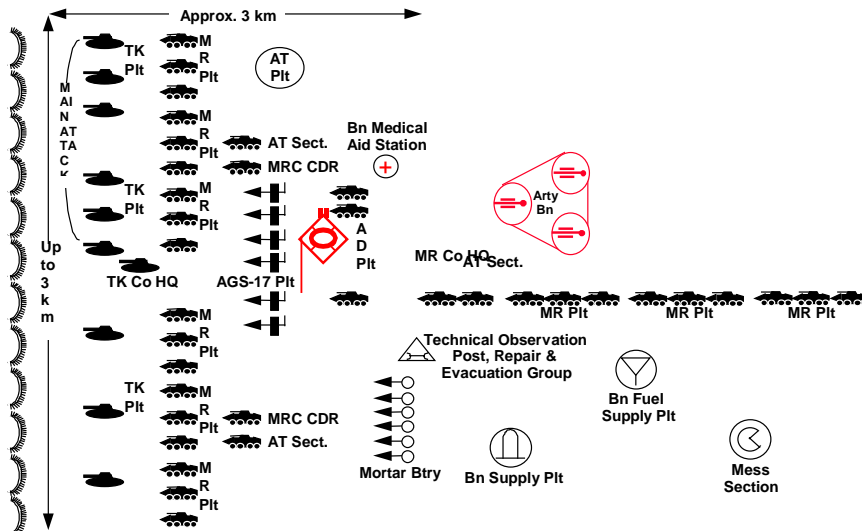


Figure 5-10. MIBN Attack Against a Partially Prepared Defense (Variant)

b. Meeting Battle.

- The **basic form of offense** used to meet and destroy BLUFOR tactical reserves.
- Goals: to destroy the BLUFOR and to continue developing the offensive.

- The side that seizes the initiative first through rapid deployment into battle or prebattle formations and through delivery of indirect and direct fires is most likely to win, even in the face of a superior BLUFOR.
- *Figure 5-11* illustrates the circumstances under which a meeting battle may occur.
- *Figure 5-12* describes Phases of a Meeting Battle.
- *Figure 5-13* illustrates possible outcomes of advance guard action in meeting battle.

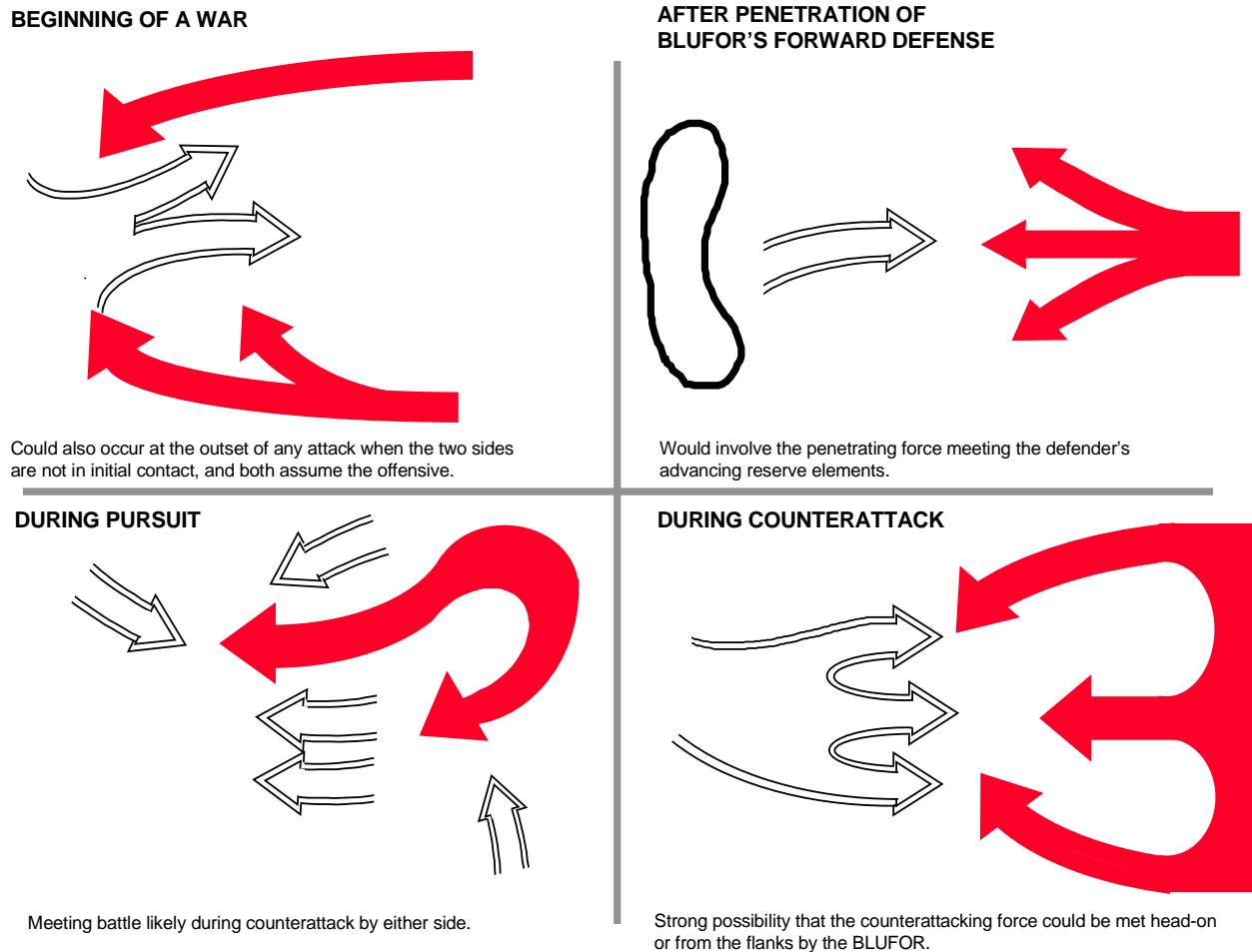


Figure 5-11. Circumstances under which a meeting battle may occur.

(1) **OPFOR battalion in the meeting battle.** A mechanized infantry or tank battalion is most likely to become involved in a meeting battle when acting as the **advance guard** of a brigade. This is also true of a battalion acting independently as a **forward detachment** of a division or brigade. When performing such a role, a mechanized infantry battalion is normally reinforced with tank, artillery, and engineer troops and possibly with antitank, air defense, or chemical protection elements. A tank battalion would be similarly reinforced, but with mechanized infantry rather than tank or antitank elements. *Figure 5-14*, illustrates advance guard actions.

(2) **OPFOR company in the meeting battle.** OPFOR maneuver companies fight meeting battles and defending enemies in the same manner. A mechanized infantry or tank company normally fights as part of a battalion. However, it can also act independently as a **forward security element** of an advance guard or a forward detachment. A company in such a role can receive reinforcements from NBC reconnaissance, artillery, and a unit of the other maneuver arm (tank or mechanized infantry).

Phase	Element in March	Basic Task	Actions on Contact
Initial Phase	Reconnaissance Patrols and Groups	Obtain data on BLUFOR disposition and terrain along main routes of advance.	<ul style="list-style-type: none"> Disengage when possible. Report and/or continuously monitor the situation. Bypass BLUFOR, continue to penetrate BLUFOR positions, particularly nuclear-capable and high-precision weapon systems. In favorable conditions (or out of necessity), may attack advancing units, take prisoners, disorganize/disrupt BLUFOR, and destroy BLUFOR NBC and high-precision weapons and C³I systems.
	Forward Detachment	Seize key terrain to facilitate the advance of the main body. May conduct raids en route to objective against key targets (NBC and high-precision weapon systems, C ³ I centers)	<ul style="list-style-type: none"> Avoids contact as much as possible, moving rapidly to its objective. If necessary, conducts meeting battles like a battalion acting as an advance guard.
	Advance Guard	Move along route of main body to ensure uninterrupted advance of main body, overcoming BLUFOR security/reconnaissance forces and obstacles.	<ul style="list-style-type: none"> Reports BLUFOR contact/disruption. FSE deploys and attempts to overcome BLUFOR based on information from CRP(s). If the FSE is not able to overcome the BLUFOR, it assumes a defensive overwatch position to support maneuver of main body of advance guard. Main body of advance guard attempts a close envelopment or double envelopment to defeat the BLUFOR unless his force is overwhelming in size. If successful, units reform and resume march or initiate pursuit. If unsuccessful, units hold positions/block BLUFOR/continue attacking to support the subsequent maneuver and attack of the main body of the parent unit.
Actions of Main Body	Main Body	Deploy rapidly for the attack and defeat of the BLUFOR, generally from the flanks.	<ul style="list-style-type: none"> Based on information from forward elements, commander maneuvers his forces and attempts to envelop. Units march rapidly to assigned sectors and deploy in prebattle/battle formations as needed to assault BLUFOR.
Conclusion	Main Body	Develop the attack into the depths of the BLUFOR rear.	<ul style="list-style-type: none"> If BLUFOR withdraws, it initiates pursuit. If it decisively defeats the BLUFOR, it resumes direction of march and overall mission. If it does not defeat the BLUFOR, it continues to develop the attack and holds positions aggressively until higher headquarters can conduct its maneuver. If it is unsuccessful, it may go over to the defense in the course of the offense.

Figure 5-12. Phases of meeting battle.

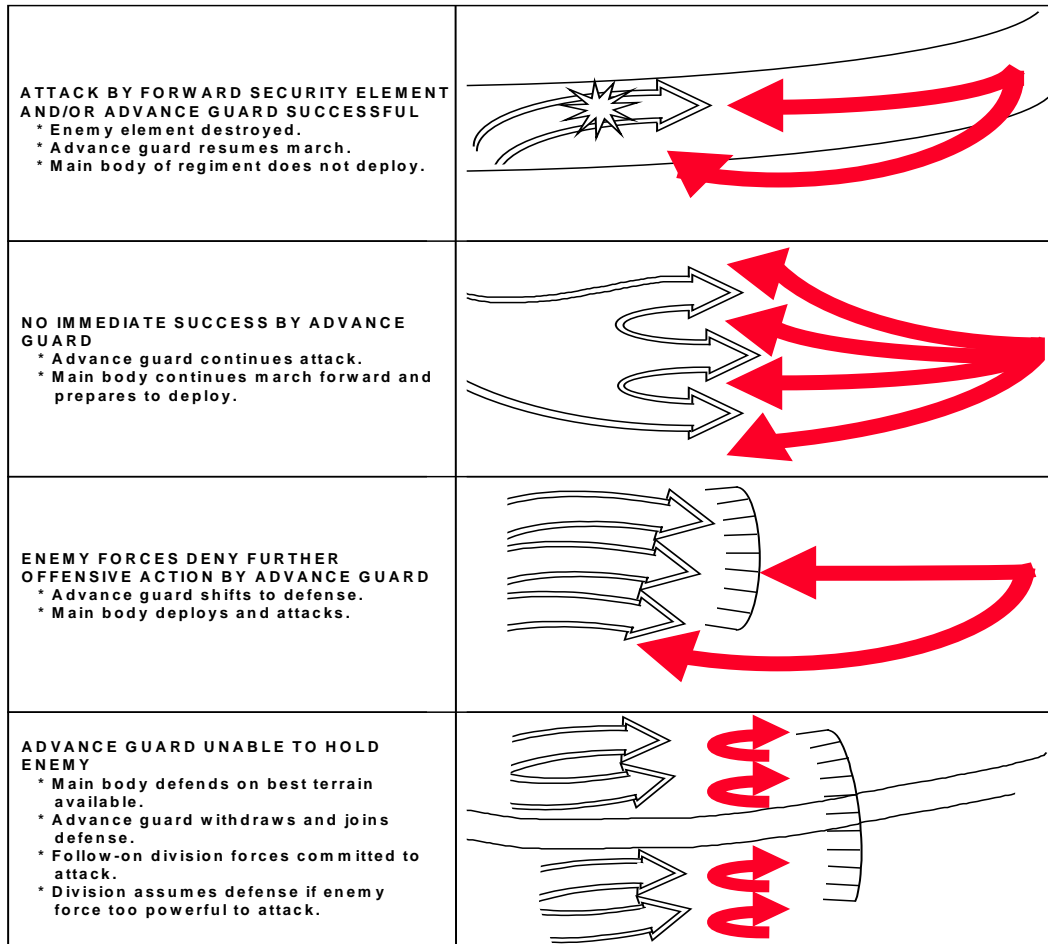


Figure 5-13. Possible outcomes of advance guard action in meeting battle.

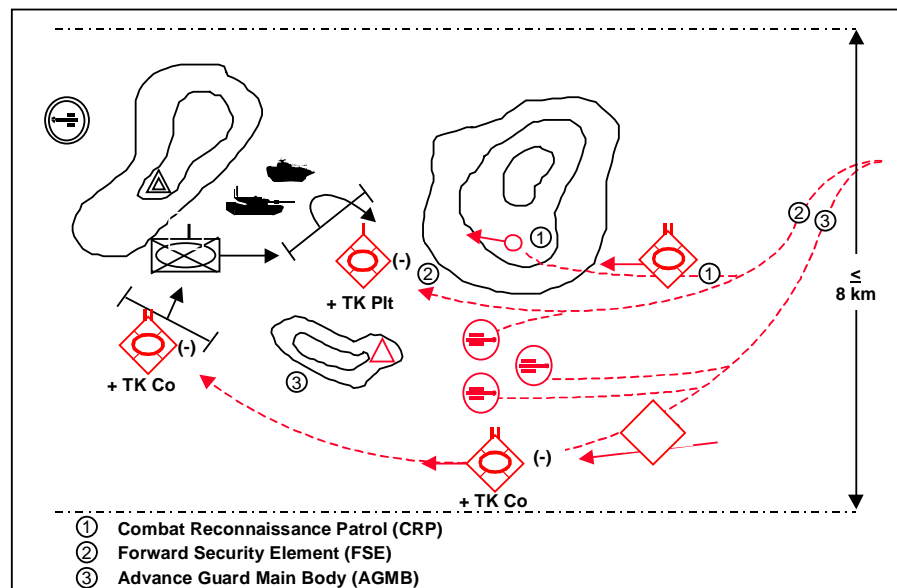


Figure 5-14. Advance Guard Actions

COMBAT RECONNAISSANCE PATROL (CRP) / FORWARD PATROL

Upon contact, actions of the CRP/Forward patrol are:

- Report contact to the advanced guard commander.
- Attempt to penetrate to the BLUFOR main force, bypassing his advance elements.
- Perform chemical and engineer reconnaissance.
- Collect all information on the BLUFOR that will expedite the commander's decision.

Build-up of Firepower (CRP/Forward Patrol)

Time: **0 minutes**
 Forces Committed: **3 BTRs**

FORWARD SECURITY ELEMENT (FSE)

Actions of the FSE, moving in column behind the CRP(s) by up to 10 kilometers, are:

- Advance at maximum speed.
- Engage the BLUFOR with all weapons.
- Develop the fight.
- Seize and hold a position until arrival of the advanced guard main body.

Build-up of Firepower (FSE)

Time: **+20 minutes**
 Forces now committed: **11 BTRs**
3 Tanks
6 Mortars
6 Howitzers, 122mm

ADVANCE GUARD MAIN BODY (AGMB)

At the time of initial contact, the advance guard main body is moving in march column 5 to 10 kilometers behind the FSE. The commander:

- Defines the plan for the engagement.
- Issues orders to the commanders of the CRP and FSE.
- Moves forward, with the artillery commander, at maximum speed to an observation point.
- Issues orders for the deployment of the advance guard main body.
- Launches the attack

Build-up of Firepower (Advance Guard)

Time:	+60 minutes	
Forces now committed:	50 BTRs	2 Antiaircraft Guns
	10 Tanks	6 AT-4s and 9 AT-7s
	6 Mortars	3 recoilless guns, 73mm
	18 Howitzers, 122mm	6 Automatic Grenade Launchers

c. Pursuit. The OPFOR defines pursuit as a type of offensive conducted against a withdrawing BLUFOR. The goal of a pursuit is to complete the destruction of, or capture the BLUFOR.

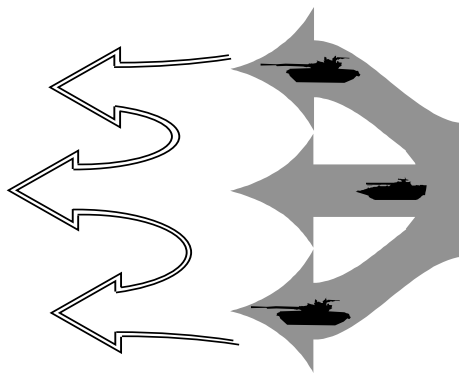
(1) The three forms of pursuit are shown in *Figure 5-15*.

(2) Characteristics of the Pursuit:

- Centralized planning.
- Decentralized execution.
- Artillery allocated to maneuver battalions.
- Extensive use of forward detachments (both heliborne and ground) to seize key terrain to block the BLUFOR's withdrawal routes.
- Heavy emphasis on reconnaissance.

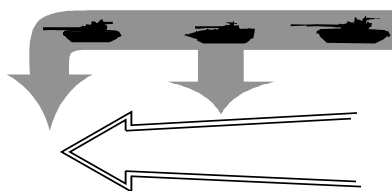
FRONTAL PURSUIT:
Used at initial enemy
withdrawal to:

- * Pressure the enemy.
- * Limit maneuverability.
- * Delay withdrawal.
- * Force enemy to deploy.



PARALLEL PURSUIT:
High speed pursuit to:

- * Permit flank attack.
- * Cut off withdrawal routes.



**COMBINATION
FRONTAL AND
PARALLEL PURSUIT:**
Combines both methods of
pursuit to maintain high rate
of advance with continual
force to hinder disengagement
and cut withdrawal routes.

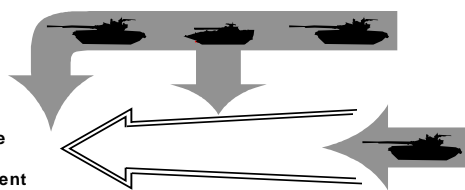


Figure 5-15. Forms of Pursuit.

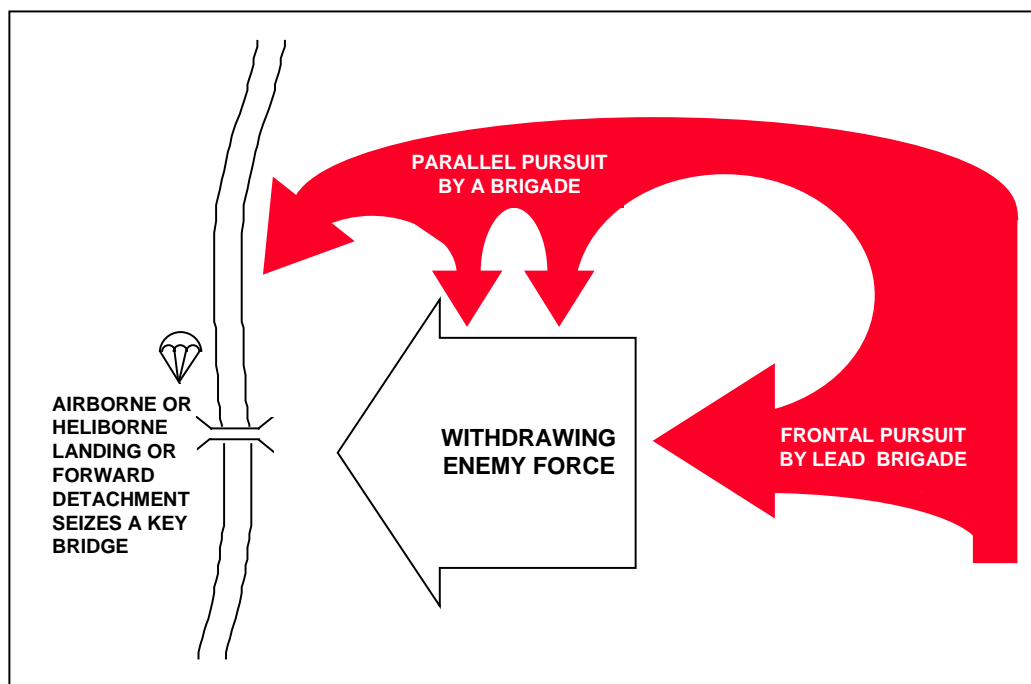


Figure 5-16. Example of a Pursuit.

Note: The OPFOR are represented by the shaded arrows.

5-4 MISSIONS.

During an attack against a defending enemy, units will be assigned a mission (objective).

a. Missions contain two elements:

- The destruction of the BLUFOR with a zone.
- The seizure of an assigned line.

b. Two Types of Missions:

- Immediate: Usually involves the destruction of the BLUFOR's main force and the seizure of a line from which to begin exploitation.
- Subsequent: Results in the complete destruction of the BLUFOR and the seizure of a line deep in the BLUFOR's rear.
- Each unit's subsequent mission corresponds to its next higher headquarters' immediate mission.

c. Mission Depth. (See Figure 5-17) Depends on:

- The relative strength of friendly and BLUFOR forces.
- The operational functions of the friendly and BLUFOR (e.g. conducting a supporting attack as opposed to conducting the main attack or having a mission to screen rather than to defend).
- The terrain.
- Most importantly, the **level of preparation of the BLUFOR's defense**. The more prepared the BLUFOR's defense, the shallower the depth of the mission. The less prepared, the deeper the mission.

d. Mission factors.

- Forward detachments may receive terrain-oriented missions, such as river crossing sites or mountain passes.
- The line of a unit's immediate mission is normally the planned employment line for the second echelon.
- After the commitment of the second echelon, both the first and second echelons continue to advance to the subsequent mission.
- Brigades and battalions may be given a direction of advance to follow after accomplishing their subsequent missions.
- Units do not normally stop to consolidate after accomplishing their missions. The advance is to continue without interruption.
- OPFOR units normally do not stop on objectives or mission lines and consolidate; they continue the attack deeper into the BLUFOR rear.

OPFOR First Echelon	IMMEDIATE	SUBSEQUENT	
	Destroy/Take Positions of	Complete Destruction of	Destroy/Take Positions of
DIVISION (Day 2-4)	Rear of Division	Rear of Division	Corps
DIVISION (Day 1)	Reserve Bde of Division	Reserve Bde of Division	Rear of Division
BRIGADE	Rear of 1st-Echelon Bde	Rear of 1st-Echelon Brigade	Reserve Bde of Division
BATTALION	Rear of 1st-Echelon Bn	Rear of 1st-Echelon Bn	Rear of 1st-Echelon Bde
COMPANY	Rear of 1st-Echelon Co	Direction of Advance (Toward Bn Immediate Mission)	
PLATOON	Rear of 1st-Echelon Plt	Direction of Advance (Toward Co Immediate Mission)	

Figure 5-17. Mission Depths Against a Partially Prepared Defense.

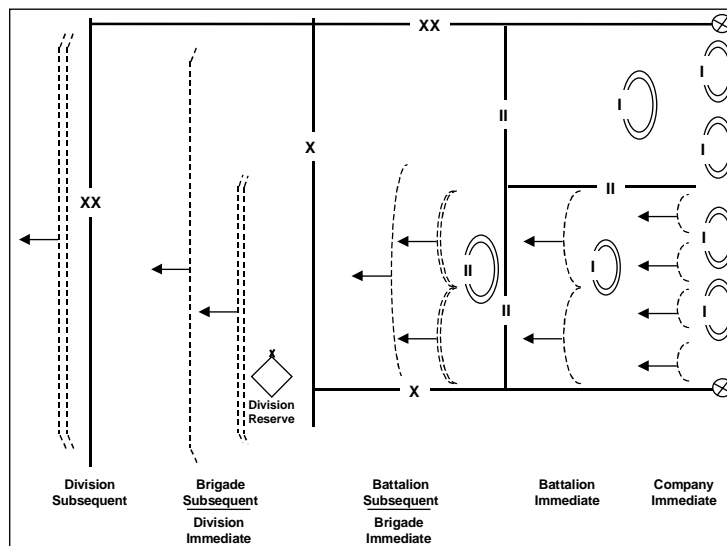


Figure 5-18. Missions Against a Partially Prepared Defense.

5-5 RECONNAISSANCE IN THE OFFENSE.

The OPFOR considers reconnaissance the most important element of combat support. All commanders and staffs organize reconnaissance to acquire information about the BLUFOR's weapons of mass destruction; force disposition and intentions; and terrain and weather in the area of impending combat. This information is crucial to the planning process for command and control systems. Reconnaissance can decisively influence the outcome of a battle, operation, or campaign. See *Section 1-11* for Reconnaissance Task organization.

a. Army Group reconnaissance:

- Locate the most critical targets, to include:
 - NBC and high-precision weapons.
 - Intelligence gathering assets
 - Higher headquarters and communications centers.
 - General support artillery groups.
 - Operational-strategic groupings and their movements.

b. Army reconnaissance:

- Missions:
 - Contents of airfields and army aviation forward operating bases.
 - Major concentrations of reserves.
 - Unit boundaries.
 - Location and extent of defended areas.
 - The BLUFOR's combat capabilities and intentions.

c. Division reconnaissance:

- Operate out to approximately **50** kilometers.
- Airborne qualified long-range reconnaissance company up to **100** kilometers deep without vehicles.
- Missions:
 - Locating, identifying, and reporting BLUFOR NBC and high precision weapon delivery means, headquarters, communications centers, troop concentrations, and movements of BLUFOR units.
 - Determining the strength and dispositions of the BLUFOR's defenses and locating his boundaries.
 - Providing topographical information concerning routes to, or bypasses around, BLUFOR positions as well as concerning lateral routes.
 - Identifying the extent and depth of minefields and the types of mine employed (assessing obstacles and possible crossing points).

- Establishing the extent of zones of contamination.
- Identifying potential communications facilities and other sites for use by their own forces.

d. **Special brigade reconnaissance** troops carry out reconnaissance, operating from up to **25 to 30** kilometers forward of the OPFOR line of contact. They might operate out to a maximum distance of 50 kilometers.

5-6 FIRE SUPPORT.

In highly mobile, fluid battles, a significant proportion of the available artillery may be decentralized to lower commanders. With organic artillery and additional assets allocated from higher levels, commanders form army artillery groups (AAGs), army rocket artillery group (ARAG), division artillery groups (DAGs) and brigade artillery groups (BRAGs). Individual maneuver battalions can also receive up to a battalion of artillery in an attached or supporting role.

a. Phases of Offensive Fire Support.

- (1) **Phase I - Fire Support of a Force's Movement Forward.**
 - Long-range fires to protect a force moving from its assembly area to its line of deployment into prebattle formation.
 - Targeted against most dangerous BLUFOR long-range weapons capable of striking the unit.
 - Could begin more than an hour before the support force reaches the forward edge of the BLUFOR's defense.
- (2) **Phase II - Fire Preparation.**
 - Seeks to annihilate or neutralize BLUFOR weapons systems, C2, and troop formations.
 - Immediately precedes the attack.
 - Nature of the BLUFOR defense and the quantity and type of fire support available determine the length and organization of the preparation. May last **50 minutes or more**. Could be much shorter if the BLUFOR is weak and/or is occupying unprepared positions.
 - Initiation of phase linked to the supported maneuver formation deploying to prebattle formation.
- (3) **Phase III - Fire Support of the Attack.**
 - Starts immediately after the end of the preparation (no more than **2-4 min**) and continues until the BLUFOR's first tactical echelon has been over run.
 - Seeks to annihilate or neutralize BLUFOR troops and weapon systems directly in front of the attacking forces.
- (4) **Phase IV - Fire Accompaniment.**
 - Supports advance of attacking forces into the depth of the BLUFOR defense.
 - Supports commitment of second-echelon forces.
 - BLUFOR reserves are a priority target.

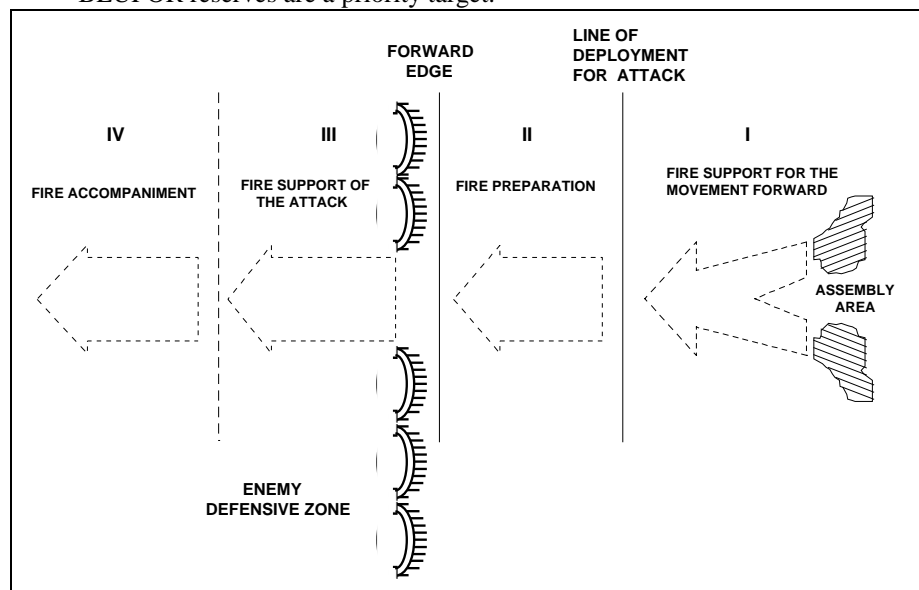


Figure 5-19. Offensive Phases of Fire Support.

b. Artillery Norms.

- (1) **Density Norms.** These figures represent fires massed and not to the positioning of artillery units.
- Attack of a well-prepared defense on the main axis: **60 to 120 tubes** of artillery per km of frontage in the main axis.
 - Attack of an unprepared defense on the main axis: **60-80 tubes per km.**
 - Attack of a supporting axis: **40 tubes per km.**
- (2) **Ammunition Expenditure Norms.**
- *Figure 5-20* is a sample of the ammunition expenditures required to produce a desired effect on a particular target using standard HE rounds.
 - Similar tables exist for a wide variety of situations and targets. They are used for fire support planning.

TARGET	REQUIRED EFFECT	Rifled Barrel							Mortars				Rocket Artillery		
		Caliber in Millimeters													
		76	85	100	122	130	152	203	82	120	160	240			
Missile Launcher	Target Annihilation	800	720	540	300	280	200	70			140	60	510	360	200
Bty (plt) of armored SP arty (mortar)	Target Neutralization	1000	900	720	450	360	270	120		450	220	120	560	400	240
Bty (plt) of unarmored towed arty dug-in (mortar)	Target Neutralization	540	480	360	240	220	180	100	400	240	160	100	400	320	180
Bty (plt) of unarmored towed arty in open (mortar)	Target Neutralization	250	220	150	90	80	60	30	180	90	40	20	150	120	60
SAM Bty	Target Neutralization	250	240	200	150	150	100	60						200	100
Signal & RADAR vans in open	Target Neutralization	420	360	280	180	180	120	60	350	180	80	40	300	340	120
Dug-in troops & weapons in prepared strongpoint	Neutralization of 1 hectare	480	450	320	200	200	150	60		200	100	50	320	240	100
Dug-in troops & weapons in hastily prepared position	Neutralization of 1 hectare	400	350	250	150	150	110	45	300	140	85	45	240	180	80
Troops & weapons in assembly area in open	Neutralization of 1 hectare	50	45	30	20	20	15	5	35	10	8	4	10	8	5
CP in dug-out shelter with overhead cover	Neutralization of 1 hectare	480	450	320	200	200	150	60		200	100	50	320	240	100
CP in open or vehicle	Neutralization of 1 hectare	120	100	80	50	50	40	15		25	20	10	30	20	15
ATGM or AT gun in open	Target Neutralization	250	240	180	140	140	100	90	240	140	80	35			

Figure 5-20. Sample Ammunition Expenditure Norms.

Notes:

1. Reduce expenditure by 25% when engaging with observed fire or adjusting from a known point.
2. Increase expenditure by 10% when range to target is greater than 10 km.
3. To achieve expenditure norms for annihilation multiply rounds required for suppression by three.

c. Types of Offensive Fire.

(1) **Fire Assault**

- Characterized by surprise and a high density of fires.
- Seeks to annihilate the targets.
- Normally the predominate form used during the preparation phase.
- Usually do not exceed **15-20 minutes**.
- More than one fire assault may be conducted during the preparation phase.
- Conducted against both point and area targets.
- Normally involves all or most of the artillery allocated to a division or army.

(2) **Controlling Fires.**

- Conducted against a target during the interval between fire assaults.
- Denies the BLUFOR the freedom to conduct combat activity or to escape before next fire assault.
- Normally conducted by a single battery.

(3) **Fire Concentration.**

- Conducted against BLUFOR troop concentrations, strongpoints, artillery batteries, C2 facilities and other such targets.
- May be conducted by several batteries or battalions.
- All weapons fire at once on the center of the target area.
- (4) **Massed Fires.**
 - Conducted by all or most of a unit's artillery with the goal of destroying a target in the shortest possible time.
 - May take the form of one large fire concentration or several concentrations fired simultaneously.
- (5) **Successive Fire Concentrations.**
 - Conducted when the supported maneuver unit has begun its final assault.
 - Provides for the successive neutralization or annihilation of specific targets or target groupings.
 - May be done in the defense to support counterattacks.
 - First line of concentration in on the BLUFOR's forward positions. Subsequent lines are 300 to 1000 m apart through the depth of the BLUFOR's position.
 - Fires are shifted on the order of the maneuver commander.
- (6) **Rolling Barrage.**
 - Similar to successive fire concentration in its conduct but evenly distributes fires across the width of the attack axis than concentrating them on selected targets.
 - Phase lines are **400 to 800 m** apart. Intermediate lines are 100 to 200 m apart. Fire duration on phase lines is **at least 5 minutes**. On intermediate lines, duration is 1 or 2 minutes.
 - Normally, a rolling barrage is conducted through the depth of the BLUFOR's first echelon battalion.
 - Because of the high ammunition expenditure required, the rolling barrage is not commonly used. May be used to support the penetration of a well-prepared defense or the crossing of a water obstacle.

5-7 ANTITANK.

The OPFOR can employ the **antitank (AT) reserve** as a blocking force against a BLUFOR counterattack during the offense, and it also can cover threatened areas and open flanks. It can be reinforced with engineer assets, usually in the form of a **mobile obstacle detachment (MOD)**.

Missions that commanders may assign to an AT reserve include, in the offensive (or meeting engagement)—

- Repelling counterattacks.
- Protecting the flanks of a unit or a gap in deployment.
- Covering the commitment of a second echelon.
- Consolidating on captured lines.
- Gaining time for the mounting of a counteroffensive.
- Sealing off encircled forces.

5-8 ENGINEER.

a. Engineer Reconnaissance Patrol (ERP)

- Typical missions include collecting information on roads, obstacles, water obstacles and water supplies.

b. Movement Support Detachment (MSD)

- Ad hoc grouping formed from division and brigade engineer units.
- Missions include:
 - Route reconnaissance
 - Mineclearing
 - Repair/reinforcement of bridges
 - Creation of tracked vehicle routes
 - Construction of bypasses
 - Route marking

- Division:
 - Can form up to three MSDs.
 - Each may have one or two of the following types of equipment: DIM, BAT, IMR, Tanks with KMT-4/6 or 5M, Tanks with BTU, MTU-20/MT-55, TMM, or Truck mounted crane.
 - Operates on main routes.
 - Brigade:
 - Can form one MSD normally composed of an engineer platoon, one or two dozers and up to three tanks with blades or plows.
 - Operates on secondary routes.
 - MSD is normally organized in three elements:
 - Reconnaissance and obstacle-clearing group
 - One or two road/bridge construction and repair groups
 - Route marking group
 - In the march, MSDs normally move behind the CRPs.
- c. **Mobile Obstacle Detachment (MOD)**
- Ad hoc grouping formed from division and brigade engineer units.
 - Mission: **Deny key terrain** to the BLUFOR, particularly those avenues of approach that are most suited for tanks. (Figure 5-21)
 - Composition:
 - A divisional MOD normally consists of mechanical minelaying elements equipped with GMZs.
 - A brigade MOD normally consists of one minelaying platoon of three PRP-3. It is sometimes reinforced with a motorized rifle platoon.
 - MODs normally **operate with antitank reserves** to provide flank protection and to repel counterattacks.
 - In the march, it normally travels between the advance guard and the main body.

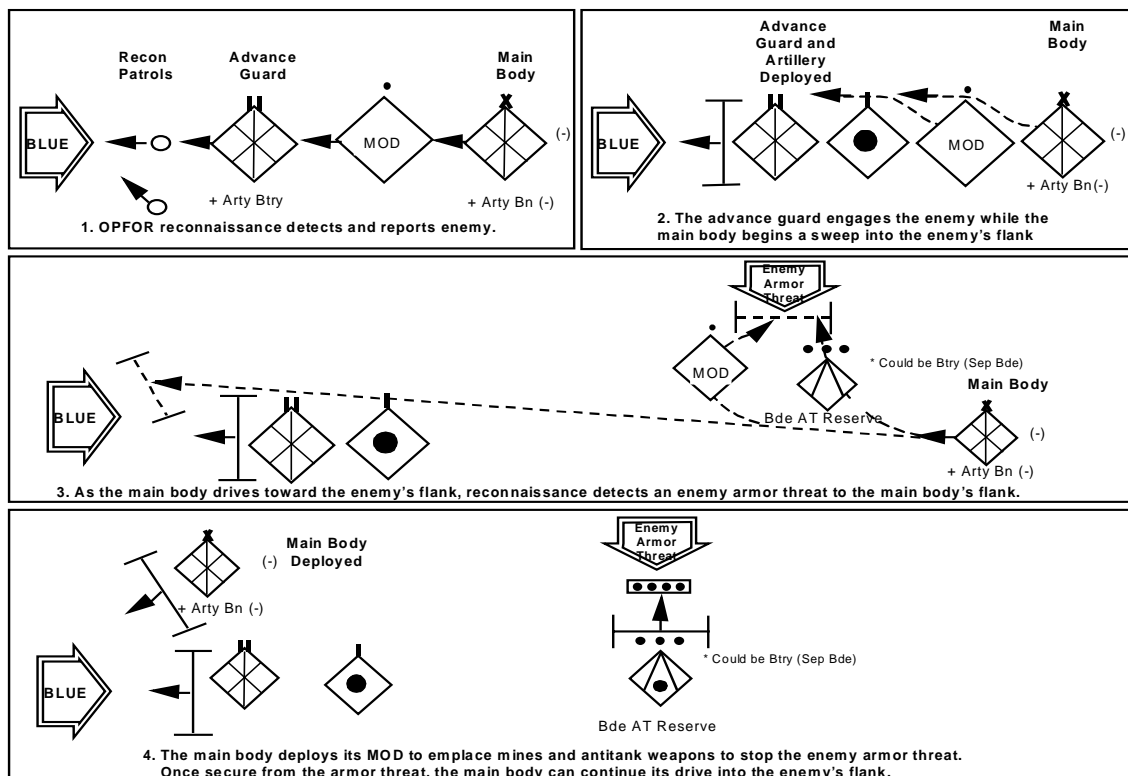


Figure 5-21. MOD in a Meeting Battle.

d. Mineclearing

- During marches, the MSD is responsible for mine clearing on the routes.
- During assaults, the maneuver unit is responsible.
 - Normal breaching method is to use mine plows/rollers.
 - Plow/roller tanks may tow a line charge behind them to detonate once they are through the minefield in order to clear the full width of the lane.
- Normally there is one plow tank per tank platoon and one roller-plow tank per company. *Figure 5-22* illustrates a tank battalion attacking through a minefield.
- Number of lanes cleared is dependent on terrain and mission:
 - Battalion on main attack axis: 6-8 lanes.
 - Battalion on supporting axis: As few as 2.

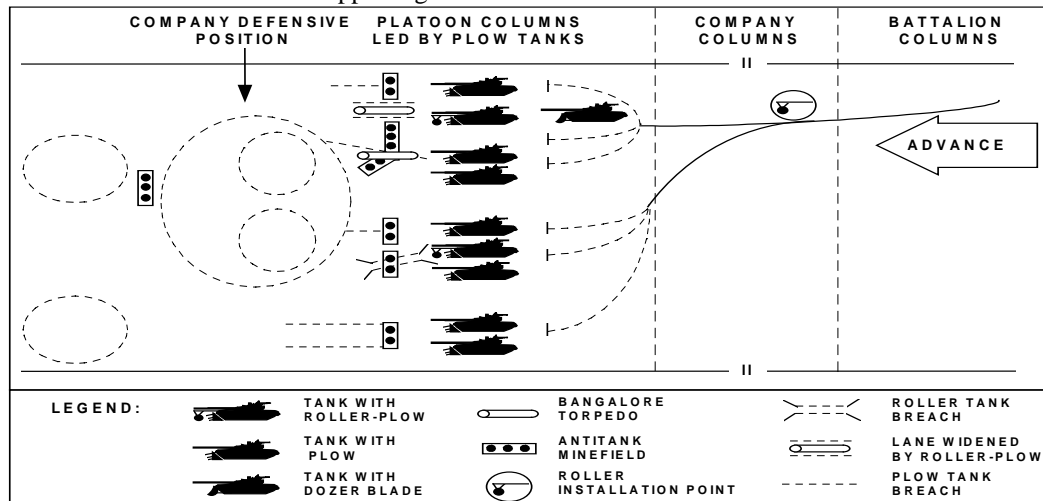


Figure 5-22. Tank Battalion Attacks through a Minefield.

5-9 COMMAND AND CONTROL.

a. Maneuver Command and Control Posts.

(1) Division.

- Forward Command Post
 - Normal location of the division commander.
 - Commander is usually accompanied by the operations officer and the chief of missile troops and artillery
 - Is normally located **2 to 5 km** behind the FLOT in the attack.
 - 100% mobile.
- Main Command Post
 - Under the control of the chief of staff.
 - Located **10 to 15 km** behind the FLOT.
 - 100% mobile.
- Rear Command Post
 - Headed by the deputy commander for the rear.
 - Located **25-35 km** behind the FLOT.
- Alternate Command Posts
 - Established as required.

(2) Brigade.

- Main Command Post.
 - Normal location of brigade commander.
 - Also location of chief of staff, plus the commanders of the brigade's engineer and chemical protection units.

- Supporting artillery commanders normally co-locate with this CP.
 - Consists of several armored vehicles.
 - Relocates **4 to 6 times each day**.
 - Located up to **5 km** behind the FLOT.
- Rear Control Post.
 - Headed by the deputy commander for rear services.
 - Consists of 1 or 2 vehicles.
 - Located up to 10 km behind the FLOT.
- (3) **Battalion.**
 - Command Observation Post
 - Only CP at battalion level.
 - Consists of 3 or 4 vehicles.
 - Located within **2 to 3 km** of FLOT.
- b. **Tactical Communications.**
 - (1) **Division.**
 - HF and VHF radio (Primary communication means)
 - VHF and UHF multichannel radio relay
 - SHF troposcatter systems
 - Wire
 - Messenger
 - Visual and Audio
 - (2) **Brigade and Below.**
 - HF and VHF radio (Primary communication means)
 - Wire
 - Messenger
 - Visual and Audio
- c. **Procedures.**
 - (1) Radio silence is normally observed when defending and when in or departing assembly areas.
 - (2) In an attack against a defending enemy, radio silence is lifted when the artillery preparation begins.
 - (3) In a meeting battle, radio silence is lifted upon contact with the BLUFOR.
 - (4) Few secure nets exist below brigade level.

5-10 NBC.

- a. **Chemical.**
 - (1) **Available Agents.**
 - Nerve - GB, GD and V
 - Blood - AC
 - Blister - HO, HN, L, HL and CX
 - Incapacitant
 - Irritant - DA, DM, CM, CS and PS.
 - (2) **Delivery Means.**
 - All tube artillery systems 122mm and larger
 - Most mortars
 - All MRL systems
 - FROG, SCUD and SS-21 SSM
 - Antipersonnel landmines
 - Aircraft (bombs and spray)
 - (3) **Employment.**
 - Offense Likely targets:
 - Troops in defensive positions astride attack axes

- NBC delivery systems
- Troop concentrations
- CPs
- Bypassed pockets of resistance
- Non-persistent agents would be used on planned attack axes.
- Persistent agents would be used deep and on the flanks.

b. Nuclear

(1) **Delivery means.**

- All tube artillery systems 152mm and larger.
- 240mm mortar.
- FROG, SCUD and SS-21.
- Various aircraft.

(2) **Likely targets:**

- NBC delivery means.
- CPs of divisions and higher formations.
- Prepared defensive positions.
- Reserve and troop concentrations.
- Supply installations.
- Communication centers.
- Key air defense sites.

c. Flame.

(1) A **flamethrower battalion** is normally assigned to each army. Little is known about its internal structure or how much equipment it has.

(2) **Equipment Capabilities.**

- *LPO-50*: Light infantry flamethrower.
 - Man-portable.
 - Range: 50-70 m.
- *TPO-50M*: Heavy infantry flamethrower.
 - Mounted on two-wheel cart.
 - Range: 180 m.
- *RPO*: Shoulder fired flamethrower.
 - Fires rocket propelled round containing 4 liters of napalm.
 - Range: 180-200 m.
- *RPO-A*: Shoulder fired flamethrower.
 - Fires a 2 liter round out to 400 m.
- *TO-55*: Flamethrower tank.
 - Variant of T-55.
 - Flamethrower nozzle is mounted beside the main gun and does not interfere with its use.
 - Fuel Capacity: 460 liters.
 - Range: 200 m.

d. Smoke.

(1) **Equipment Capabilities.**

- TDA-M: Smoke Generator.
- GAZ-66 truck variant.
 - Contains sufficient fog oil for four hours of continuous operations.
 - Under favorable conditions, one vehicle can create a smoke screen 800-1000 m long and 100 m wide.
- VEES - Vehicle Engine Exhaust Smoke System
- Various smoke pots, drums, barrels and grenades.
- Artillery smoke rounds

- Fired by D-30, 2S1, M-46, 2S3, D-20 and all but the 160mm and 240mm mortars.

e. Types of smoke screens.

- (1) **Blinding.**
 - Positioned on BLUFOR weapon systems and observers.
 - Delivered by artillery and mortars.
- (2) **Camouflage.**
 - Positioned on or directly in front of friendly troops.
 - Delivered by smoke generating vehicle, VEES, smoke pot, grenade, drum and barrel.
- (3) **Protective.**
 - Intended to protect electro-optical devices from the effects of laser radiation or to shield personnel and equipment from the effects of the flash and thermal radiation of a nuclear detonation.
 - Positioned in front of, around or above friendly forces.
- (4) **Decoy.**
 - Intended to deceive the BLUFOR as to the actual location and activity of friendly forces.
 - Positioning depends on the situation.
- (5) **Signaling.**
 - Used to mark BLUFOR positions or, occasionally, friendly avenues of approach.

5-11 Air Defense Deployment.

Priorities in deploying air defense assets are usually to protect command posts, then artillery groupings and first-echelon forces.

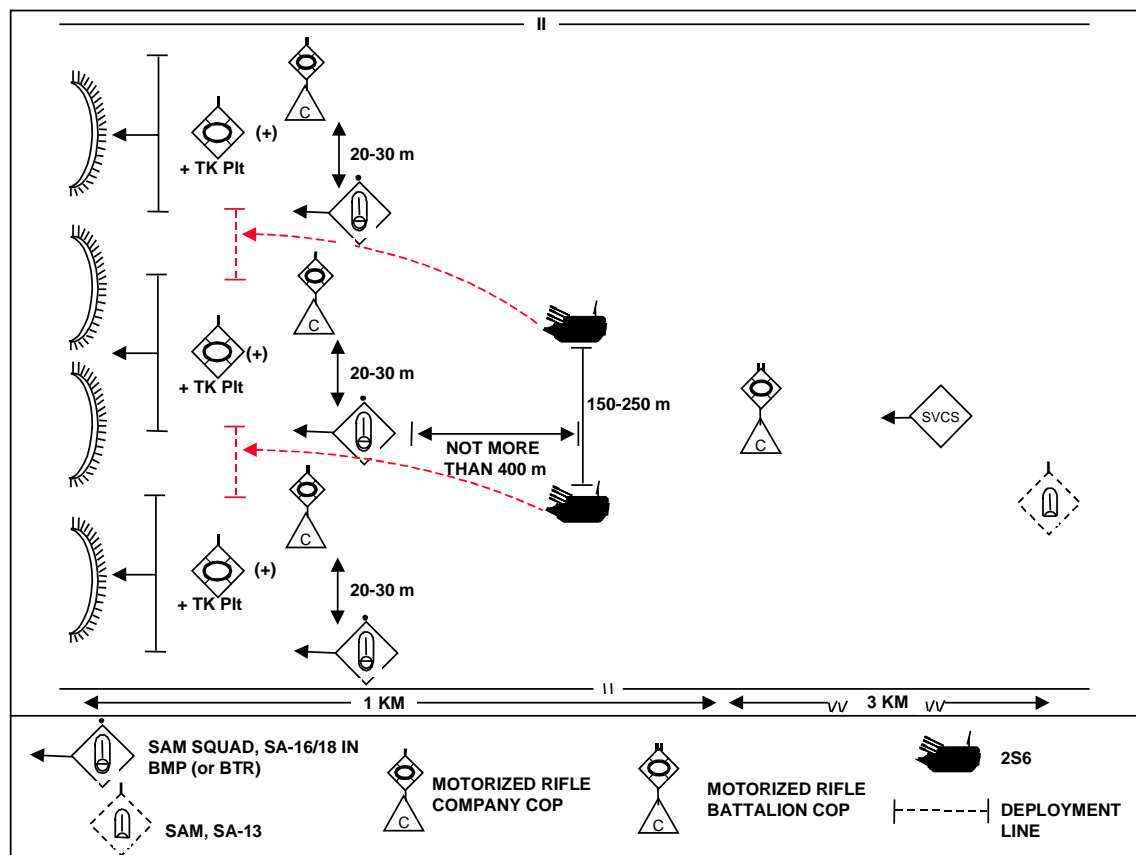


Figure 5-23. Air Defense Support for an MIBN Assault.

5-12 CLOSE AIR SUPPORT.

- a. **Air Support Missions.**
 - *On Call*: Preplanned target but executed on order of the supported commander.
 - *Pre-Planned*: Executed according to detailed plan.
 - *Immediate*: Unplanned missions flown in response to request of ground commander.
- b. **Phases of Air Support.**
 - I - Support for movement forward
 - II - Air Preparation
 - III - Air Support
 - IV - Air Accompaniment
- c. **Key Points.**
 - Attack helicopters will provide most of the close air support.
 - Air support plan will be fully coordinated with the fire support plan.
 - Forward air controllers are normally found at brigade level and only in those brigades scheduled to receive air support.
 - Battalions will have FACs only if the battalion has a particularly important or difficult mission such as acting as a forward detachment.
 - In the offense, air support will normally be massed on the main axis.
 - An operational commander normally withholds part of his assets in order to be able to respond to immediate missions that may arise during the course of an operation.

5-13 RIVER CROSSING OPERATIONS.

- a. **Methods.**
 - (1) **Crossing a River**: Contact is not expected and an administrative crossing is possible.
 - (2) **Forcing a River** (Assault crossing): Contact with the BLUFOR is expected and an assault crossing will be necessary.
 - Assault crossings may be done in one of two ways:
 - From the march (preferred method)
 - From positions in direct contact
 - Assault crossing is done by unit using organic assets.
 - Crossing is preceded by reconnaissance.
 - BTRs/BMPs lead assault covered by artillery, smoke and direct fire.
 - Heliborne forces may be used to seize a bridgehead.
 - After mechanized infantry or heliborne troop establishes bridgehead, tanks cross the obstacle via ferry, fording or snorkeling.
 - Ferry sites and bridges are established for use by non-amphibious vehicles and follow-on elements.
- b. **Brigade.**
 - Typical brigade crossing sector: 10 km wide.
 - A MIBR is expected to be able to cross its combat elements over a 200-m wide river (2 m/sec current) in **2 to 3 hours**.
- c. **Division:**
 - Typical divisional crossing sector: 20 to 30 km wide.
 - A MID is expected to be able to cross its combat elements over a 200 m wide river (2 m/sec current) in **5 to 6 hours**.

5-14 AIRBORNE OPERATIONS.

- a. **Key Concepts.**
 - Rapid deployment over great distances.
 - Virtually all-weather employment.

- Self-sufficient and air-droppable.
- Trained to fight across the range of military operations.
- Battalion-sized operations most common.
- Land in unopposed areas, then move to objective, defend until linkup occurs.
- Usually employed by the army commander.
- b. **Support to the Offense.**
 - Seize vital ground, bridgeheads, defiles.
 - Destroy higher level C2, political as well as military.
 - Block routes used by reserves or withdrawing forces.
 - Destruction of logistics installations, especially fuel and ammunition.
 - Disrupt transportation infrastructure.
- c. **Conduct of Airborne Operations.**
 - Requires air superiority, even if achieved only temporarily locally.
 - Favorable combat ratios in the landing zones and objective area are essential.
 - A battalion can be lifted in a single lift.
 - If an entire brigade is needed, airborne elements would have to be shuttled:
 - first battalion seizes the airfield.
 - follow-on forces would then be air-landed.
 - Speed and Surprise are critical.
 - Supported by air and missile strikes, and artillery.
- d. **Once on the ground:**
 - Consolidate and conduct reconnaissance.
 - Move to objective in pre-battle formation.
 - Position air defense, artillery, and engineers to support the attack on the final objective.
 - Assume battle formation within 1000-200 meters of the objective.
 - Attack in one echelon against a weak BLUFOR, two echelons against a strong BLUFOR.
 - Once the objective is secure, establish 360-degree defense using unit strongpoints.
 - Either await linkup or fight back to friendly lines.
- e. **Drop Zone Selection.**
 - Typical battalion DZ is 3 km by 4 km.
 - Typical company DZ is 1 km by 1 to 1.5 km.
 - As close to final objective as possible, but no more than 20 km.

CHAPTER 6: OPFOR DEFENSIVE OPERATIONS

INTRODUCTION.

This chapter provides you with the tactics necessary for the OPFOR to successfully conduct a defense. This chapter does not cover all aspects of the OPFOR's defensive principles, planning and execution. However, it does provide the critical concepts the OPFOR follows when planning such operations.

6-1 DEFENSIVE PRINCIPLES.

OPFOR **defensive goals** include repelling attacks by the BLUFOR, inflicting maximum losses, holding important terrain and objectives and creating the necessary conditions to transition to the offense. The OPFOR employs the following principles when conducting a defense.

- Proper use of terrain
- All around protection
- Mutually supporting fires
- Proper use of reserves
- Camouflage and concealment

The time to conduct a defensive action and the type of defense the OPFOR executes is dependent upon the primary mission of the OPFOR unit, the unit(s) on the battlefield and its current location in relation to the BLUFOR. Typically, the OPFOR will assume the defense to:

- Consolidate tactical gains
- Await additional resources
- Protect a flank
- Stop a BLUFOR counterattack
- Regroup
- Free up resources for other operations
- Hold key terrain
- Await logistical support

The OPFOR may, at anytime, conduct a defensive operation. However, the actions of the BLUFOR dictate a shift to the defense. Depending on the proximity of the BLUFOR and the nature of the battle, an OPFOR unit can shift to a defense before battle occurs or during battle, under conditions of direct contact or without contact.

6-2 TYPES OF DEFENSE.

a. Defense in Direct Contact. The OPFOR transition to the defense in direct contact occurs most often during an attack. It can also occur when the OPFOR is repelling counterattacks, consolidating captured lines and securing flanks of attacking troops, or with an unsuccessful outcome of a meeting battle. The OPFOR's main defensive area will be in direct range of the BLUFOR.

b. Defense Out of Direct Contact. The OPFOR can assume a defense before the battle begins, while out of direct contact with the BLUFOR. The main difference between defense in contact and defense out of contact is the absence of a security zone in the former. Under the latter condition, the transition to a defense is made to cover areas of possible contact, to repel a possible BLUFOR attack or support the deployment of additional forces.

In a defense out of contact it is important to carefully evaluate the terrain, both in front of the forward edge of the defense and in the depth of the defense. Terrain should be selected to provide the most advantageous position for strongpoints, organizing a system of fire and good cover and concealment.

6-3 TERRAIN CONSIDERATIONS IN THE DEFENSE.

METT-T considerations are critical to the success of any OPFOR defense. The OPFOR must examine the BLUFOR situation, since the BLUFOR and his weapons systems influence the mix of weapons the OPFOR must use and the preparation needed. Whenever possible, OPFOR units select positions to take advantage of the terrain's protective features. The OPFOR selects defensive positions behind natural obstacles (mountains, trees, and thick vegetation) or in man-made terrain features that provide cover and concealment and a good field of view of the approaching opponent.

Establishing the defense when in contact with the BLUFOR limits the OPFOR's ability to prepare a good fighting position and provide cover and concealment from BLUFOR fire and observation. If the terrain permits, the

OPFOR should use a **reverse slope defense**. Part of the force remains in contact with the BLUFOR on the forward slope, while the remainder of the force prepares the position on the reverse slope.

The **advantages** of a reverse slope defense include:

- Limiting or preventing BLUFOR's observation of the defensive position.
- Attacking forces are not able to receive direct fire support from following forces.
- BLUFOR's long-range antitank (AT) fires are not effective.
- Attacking force silhouettes itself crossing the crest of the hill.
- Engineers can conduct their work out of direct fire and observation from the BLUFOR.

The **disadvantage** of a reverse slope defense is that weapon systems cannot exploit their maximum range. When possible, the OPFOR would use both a forward and a reverse slope defense to take maximum advantage of the terrain.

6-4 ORGANIZATION OF THE DEFENSE.

a. Reconnaissance. Divisional, brigade, and battalion reconnaissance elements will be located in and forward of the security zone (if established) or forward of the main defensive area.

b. Combat Security Outposts. First-echelon brigades on main avenues often form **combat security outposts**, and each forward battalion can establish such an outpost. A combat security outpost for a battalion is normally a reinforced platoon. This platoon occupies a position 2 to 3 km forward of the main defenses. *Figure 6-1* lists the conditions under which different types of security forces deploy.

(1) Missions.

- to delay, inflict losses on, and to deceive the BLUFOR about the true location of the main defenses.
- Form strongpoints forward of the main defenses. They take over the mission to delay the BLUFOR's main effort when the divisional forward detachment shifts to a secondary axis.
- Forces the BLUFOR to deploy in a position short of the main defensive belt, believing it actually is the main defensive belt.

Artillery units firing in support of the combat security outpost may have to occupy temporary firing positions farther forward than normal, even in front of the forward edge. The combat security outposts described above should not be confused with company or battalion-sized elements placed into forward positions by second-echelon brigades and/or divisions when required by the situation. These forces, too, have a mission similar to that of the forward detachments in the security zone.

Mission	Deployed When Defending		Command Level			Distance in Front of Forward Edge of Main Defense
	In Contact	Out of Contact	Directed By	Deploying Force	Fighting the Battle	
Forward Detachment in Security Zone	No	Yes	Army/ Army Corps/ Division	Division	Battalion	15 to 50 km
Forward Position	Yes	Yes	Division	Brigade	Company/ Company Plus	4 to 6 km
Combat Security Outpost	No	Yes	Brigade	Battalion	Platoon/ Platoon Plus	2 to 3 km

Figure 6-1. Types of combat security forces.

- (2) If the BLUFOR threatens to bypass or overrun the combat security outpost, the brigade commander may order it to withdraw to its position in the main defensive belt. Cover for its withdrawal can include planned fire from brigade assets, fire from the outpost's platoon and fire from tanks in ambush. The withdrawal plan provides the combat security outposts passages through the main defensive belt's obstacle system.

c. Security Zone.

- Found only in the defense out of direct contact.
- Established by order of the operational (army/army group) commander.
- Is up to 50 km deep (Army) or 15 km (Division).
- Forces in the security zone will attempt to:
 - Delay the attacking force.
 - Deceive the BLUFOR as to the location of the main Defensive area.
 - Force the BLUFOR to deploy in attack formation early.
 - Inflict maximum damage on the BLUFOR.
- Is occupied primarily by forward detachments. Artillery and AT elements may also be located in the security zone.

d. Main Defensive Area.

- Mission is to prevent BLUFOR penetrations.
- Is based on defense in depth.
- Its basic element is the **battalion defensive area**, composed of company strongpoints.
 - All weapon systems and vehicles are dug in as time permits.
 - Fire sacks are used to destroy BLUFOR forces either immediately forward of or within the main defensive area.
 - Counterattacks are planned for at battalion and above.
 - Disposition of forces within the main defensive area is situation dependent. Forces may be repositioned during defensive operations to meet the BLUFOR's main effort and disrupt his concept of battle.
 - No major differences between the main defensive area of a defense in direct contact and one out of direct contact.

An army of from two to four divisions will defend a sector from 100 to 150 kilometers wide and 100 to 150 kilometers or more deep on an important axis. Much depends on the relative strengths of the sides and on the terrain in the sector. An example is that in mountainous, desert, or arctic regions an army might hold a wider sector. While the army is on a greatly threatened key axis in normal terrain, it might defend a narrower sector. (See figures 6-2 for "rules of thumb" on unit frontages, 6-3 for an example of MID defense, 6-4 & 6-5 for MIBR in defense, 6-6 for MIB in defense and 6-7 for MIC in defense.)

Mechanized Unit	Frontage	Gaps Between Elements	Depth
Division	20-30 km	NA	10-20 km
Brigade	10-15 km	NA	7-10 km
Battalion	3-5 km	Up to 1500 m	1.5-2.5 km
Company	1-1.5 km	Up to 300 m	Up to 1 km
Platoon	Up to 500 m	Up to 15 m	Up to 200 m
Squad	Up to 150 m		N/A

Figure 6-2. OPFOR unit frontages.

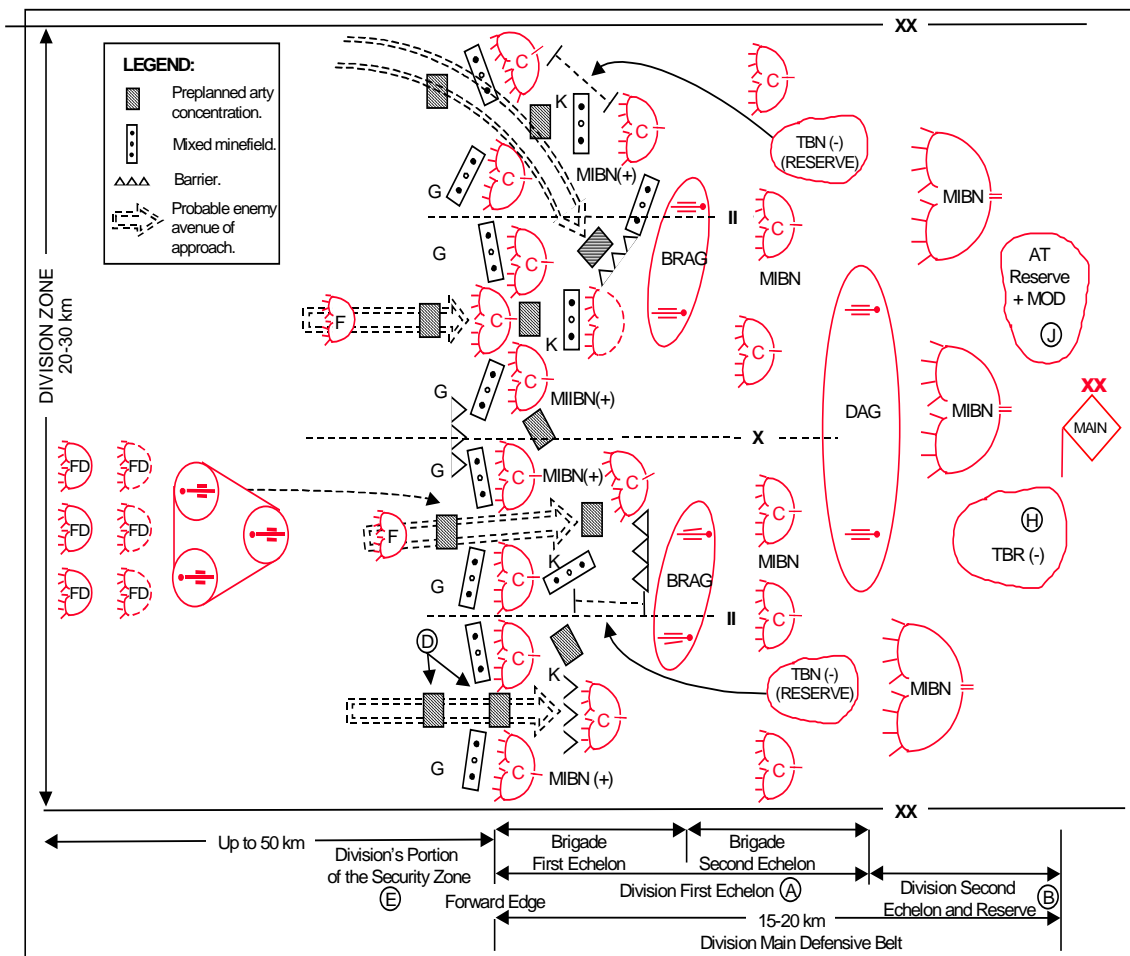


Figure 6-3 MID in the Defense (Variant)

1. The division main defensive belt is organized into **two echelons**. The first-echelon brigades form along a defensive line and comprise the main defensive belt (A). Their mission is to stop the BLUFOR in front of their forward edge. The division allocates 1/2 to 3/4 of its combat power to its first echelon. The division's second echelon (B), 1/4 to 1/2 of available strength has the mission to destroy or repel any penetration of the main belt.
2. The defense in both echelons is built upon **company-sized strongpoints (C)** unified into battalion defensive areas. Strongpoints are planned for all-around defense and sited so deliberate, pre-registered gaps (D) exist between them.
3. Divisions form a **security zone (E)** in front of their main defensive belt when assuming the defense out of direct contact. Reinforced battalions taken from second-echelon brigades are designated as forward detachments; these establish a series of reinforced company-sized strongpoints sited on BLUFOR main avenues of approach. These security zone strongpoints are to delay, disrupt, and destroy advancing BLUFOR units. First-echelon brigades may establish a forward position (F) 4-6 km from the main defensive belt. This company-sized position imitates the main defense, causes the BLUFOR to conduct premature artillery preparations, and aids the disengagement of the forward detachment. Brigades and battalions deploy combat security outposts (platoon strength) (G) in the security zone forward of their sectors.
4. The division can form a combined arms reserve (H), not more than 1/9 of its total combat power, as the commander's contingency forces. An MID holds its AT battalion, combined with an engineer mobile obstacle detachment as an AT reserve (J) to block penetrations of the first echelon and support the counterattack with fire.
5. The fire plan is based on antitank fires and integrates ATGM, AT gun, tank, BMP, attack helicopter, and indirect and direct artillery fires on accessible terrain in front of and between first-echelon strongpoints and into fire sacks (K) throughout the defensive sector.

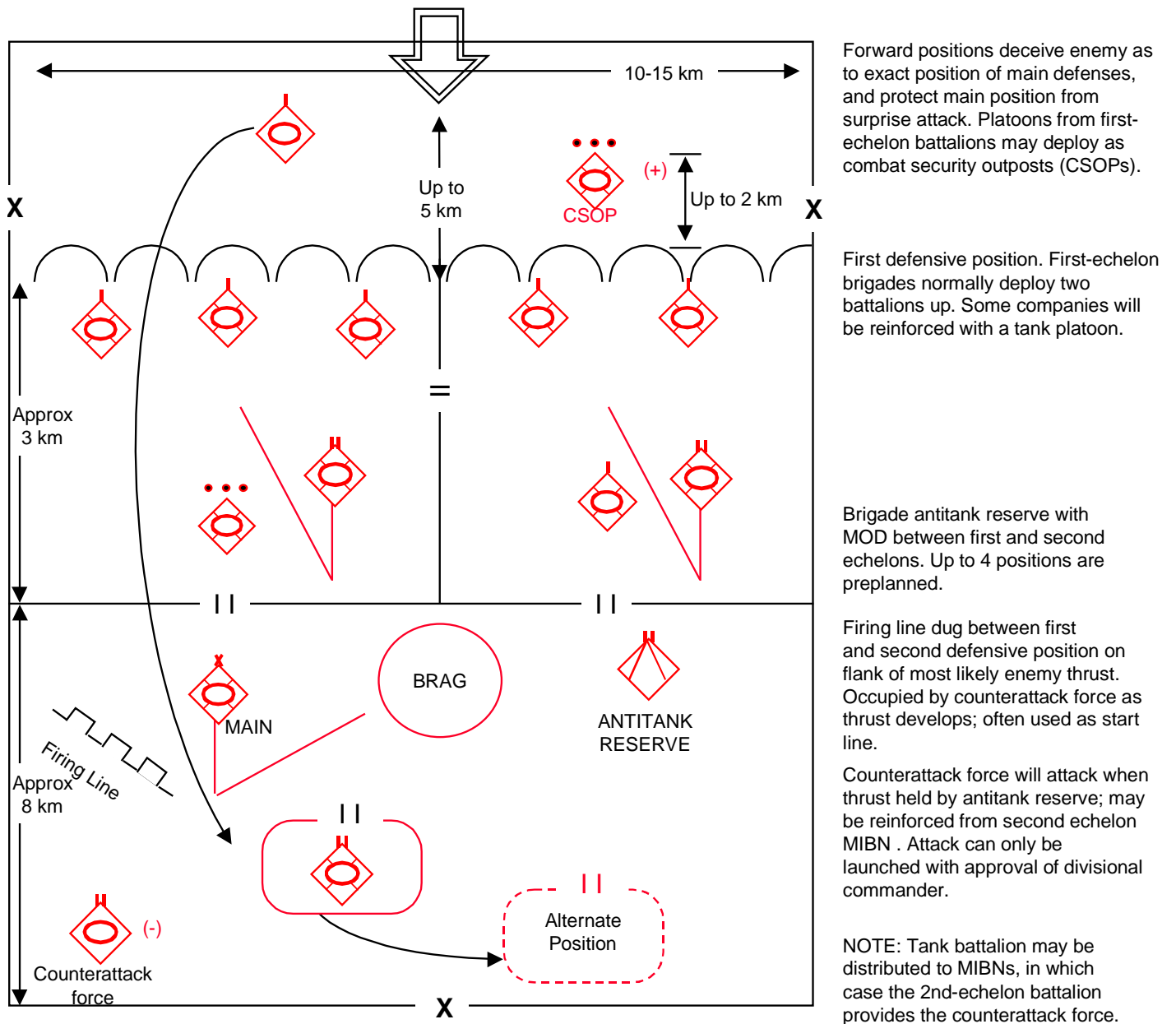
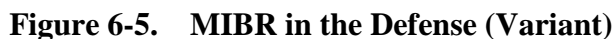


Figure 6-4. MIBR in the Defense (Variant)



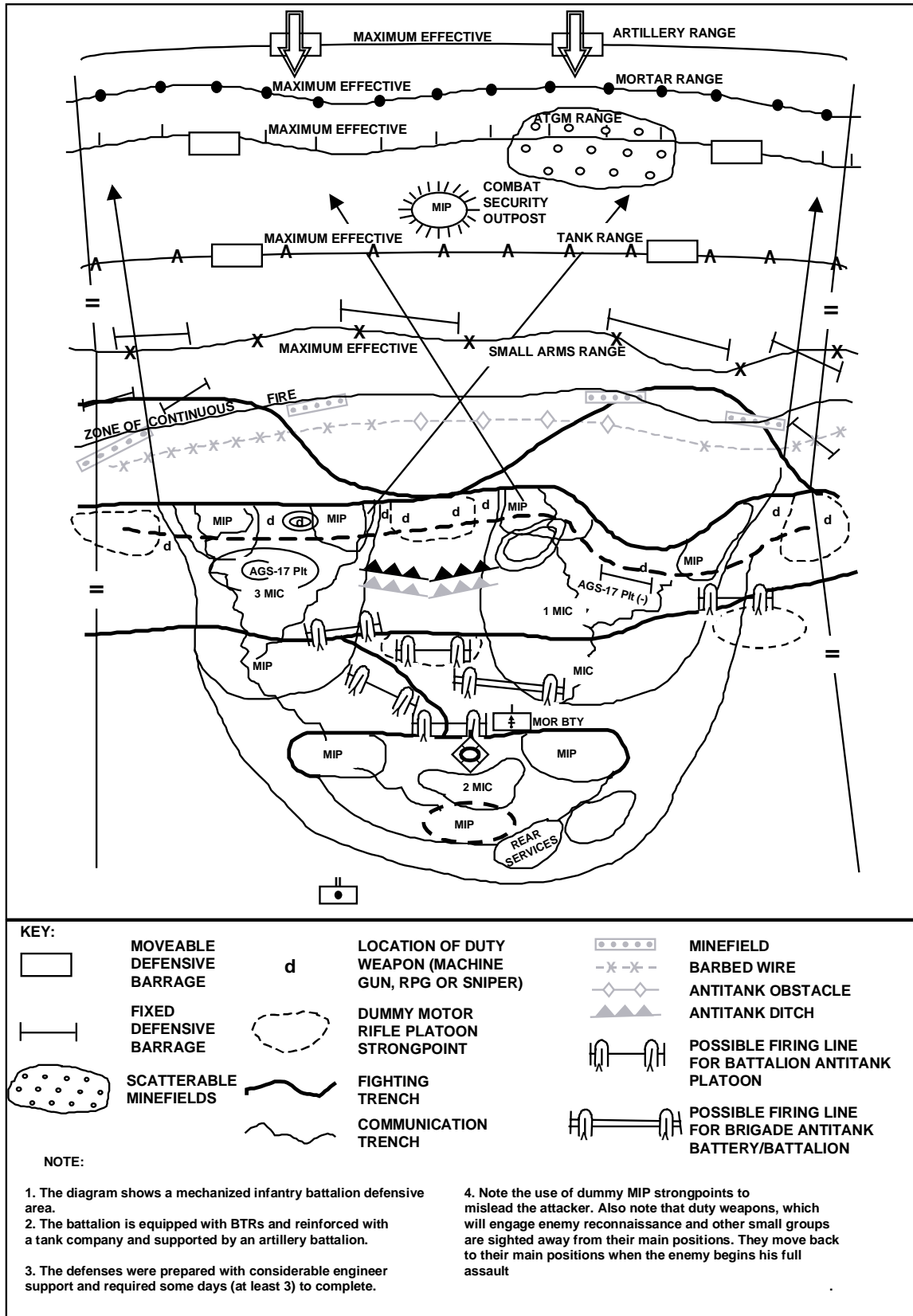


Figure 6-6 Mechanized Infantry Battalion in the Defense (variant)

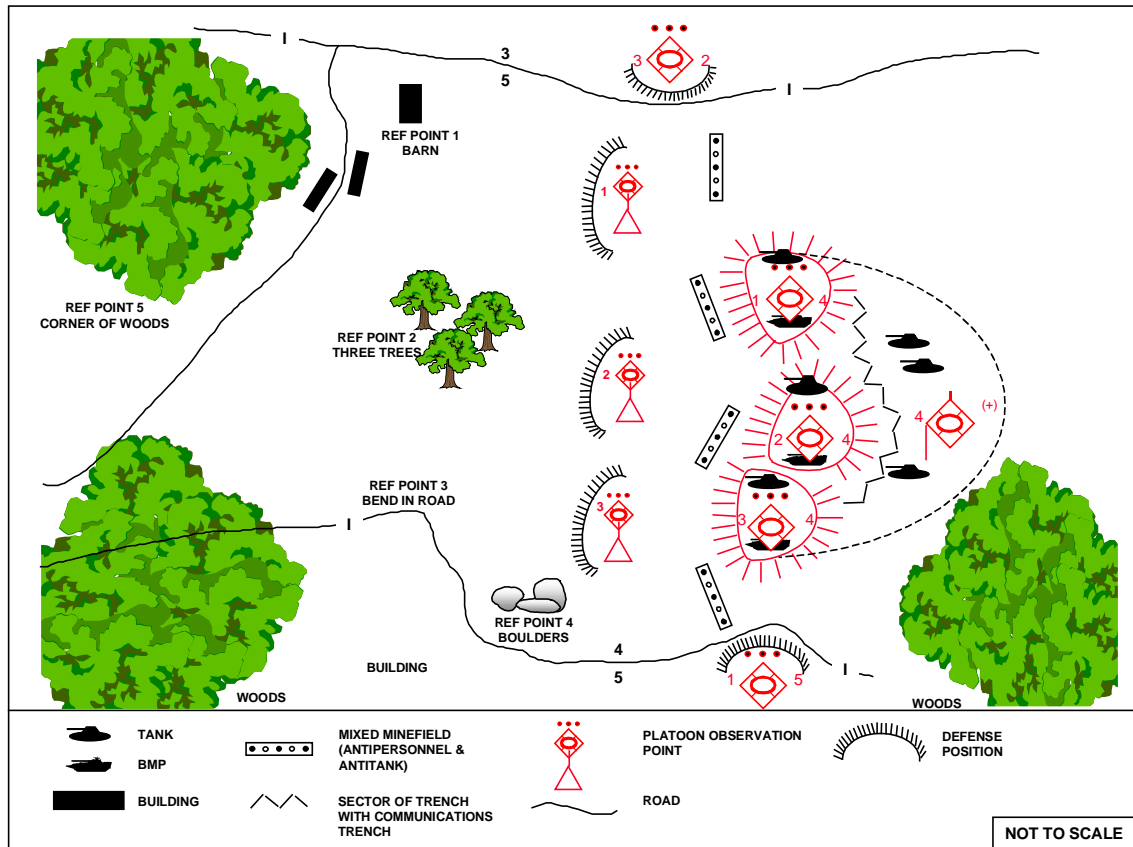


Figure 6-7. Mechanized Infantry Company (MIC) in the Defense

6-5 FORWARD DETACHMENTS.

When assuming the defense out of contact with the BLUFOR, an OPFOR division fights its assigned portion of the security zone. This zone may extend 15 to 50 km forward of the main defensive belt. Forward detachments can be employed in the security zone, along with reconnaissance patrols from the divisional reconnaissance and EC battalion. In the defense, the forward detachment has the mission of delaying, disrupting, or destroying the advancing BLUFOR. A division may employ one or two forward detachments, up to reinforced battalions in size. Forces for the forward detachment come from the division's second echelon.

A forward detachment in the division's portion of the security zone establishes a series of defensive positions sited on BLUFOR main avenues of approach. If the terrain permits, the forward detachment commander positions his companies on a major avenue to provide mutual support. Because they must cover a broad frontage, he usually deploys the battalion in a single echelon with a strong combined arms reserve of up to a company. If there are multiple avenues of approach, he may have to divide the forward detachment to cover them with individual reinforced company positions. He covers gaps or intervening terrain between the company positions with obstacles, reconnaissance patrols, and fires.

The forward detachment prepares several successive positions, as the terrain and space allow. These positions and the avenues they control receive extensive engineer preparation, including emplacement of obstacles and minefields. Of course, the division commander has to consider the tradeoff in allocating engineer effort. If he allocates more resources to the security zone, then he delays the BLUFOR longer, and gets more time to prepare the main defensive belt. On the other hand, if the commander limits the engineer effort in the security zone, he frees assets to prepare the main defensive belt more quickly or extensively.

A forward detachment's initial position is the one at the far edge of the security zone. If possible, it is on a favorable natural line; that is, a natural obstacle or defensible terrain. Subsequent positions to the rear are far enough apart to preclude the BLUFOR from engaging one and then another without displacing his indirect fire weapons. They are close enough to allow the forward detachment to maintain coordinated, continuous fires on the BLUFOR while moving from one to another.

The final position the forward detachment may occupy in the security zone is the **forward position**, about 4 to 6-km forward of the main defensive belt. Depending on the pressure the forward detachment is receiving from the attacking BLUFOR, it may occupy a prepared forward position, or it may pass through the forward position. In the latter case, companies from first-echelon brigades occupying the forward positions may cover its disengagement and rearward passage of lines. The forward position deceives the BLUFOR about the location of the forward edge of the main defensive area. It receives extensive engineer preparation to assist in this deception.

The separation of the forward detachment's positions from the division's main defensive belt requires the division commander to place artillery and air defense units in the security zone to support the forward detachment's mission. These forces also occupy prepared and camouflaged positions.

The forward detachment engages the advancing BLUFOR at long range, initially with the supporting indirect fire assets. It then engages him with direct fire systems as he closes. It may launch local counterattacks if the situation dictates. The object is to strip away the BLUFOR's reconnaissance and force him to deploy to attack the position and to expend indirect fires; this can slow and disorganize his advance. Normally, the forward detachment relocates to a subsequent position rather than become decisively engaged or bypassed. By repeating these actions, the detachment may be able to exhaust and disorganize the BLUFOR before he reaches the main defensive belt. This keeps the BLUFOR from penetrating the defense and makes him vulnerable to counterattacks.

The division commander expects the forward detachment to defend aggressively. He retains control over its successive redeployment. Without his specific permission, this forward detachment cannot relocate. The commander may need to gain time to permit the establishment of the main defensive belt. If needed, he can require the forward detachment to continue defending its position, even if this means it becomes decisively engaged or encircled.

If the battle in the security zone is not successful in destroying or halting the attacking BLUFOR, the forward detachment occupies a forward position as a last measure before returning to its parent second-echelon brigade. The OPFOR expects that, even if all goes well, the forward detachment would take losses and would not be at full capability. The forward detachment moves off the BLUFOR main avenue of approach and occupies a forward position in a less-threatened, secondary sector. The BLUFOR, advancing along his main avenue, can still encounter forward positions. These positions are occupied by companies or battalions from the second-echelon brigades and/or combat security outposts of the first-echelon brigades instead of the forward detachment.

6-6 FIRE SUPPORT.

Fire support covers all combat support provided to ground forces by missiles, artillery and aviation. The term "artillery" includes SSMs, MRLs, Guns/Howitzers and mortars 120-mm and larger antitank artillery.

a. Types of Fire. The OPFOR plans artillery defensive fires – primarily barrier fires -- to **disrupt** the BLUFOR attack.

(1) Barrier Fire. Barrier fire is a continuous curtain of defensive fire across the approach of the attacking BLUFOR. Although normally used in the defense, it also has applications in offensive operations against BLUFOR counterattacks. Barrier fire is useful with fire concentrations, massed fires, and directly aimed fire from tanks and guns. The **types of barrier fire** are:

- **Standing Barrier Fire.**

- Uses a **single line of concentration** to disrupt a BLUFOR attack. The OPFOR plans standing barrier fires well in advance.
- Projects artillery fires from likely avenues of tank approach. A ground observation point observes these fires planned in front of, and to the flanks of, the defensive positions.
- All the artillery in a formation, except rocket artillery, fires the standing barrier fire.
- Begins when BLUFOR tanks and infantry approach the planned line of fire concentration. The fires continue at rapid fire until they cut off BLUFOR infantry from their tanks and halt their attack.
- If the BLUFOR maneuvers around the fire concentration line, the fires shift to the rolling barrier fire approach.

- **Rolling Barrier Fire.**

- Lands on **several lines of concentration**. Each line lies successively closer to OPFOR defending troops.

- Lines of concentration for the rolling barrier fire should impact on terrain that a ground observation point can see. Distances between lines of fire concentration will be 400 to 600 meters or more.
- The final line of concentration closest to friendly troops will be 700 to 1000 meters from forward defensive positions.

b. Phases of Fire Support. The OPFOR constructs a **system of fire** bringing all available fires on the BLUFOR as it approaches. The system provides continuous fire at the forward edge, and the flanks, and within the defensive position. In addition, it should allow rapid concentration of fire against the most threatened axis. The goal is **to engage the attacking BLUFOR with an overwhelming intensity of fire** as it approaches the forward edge of the defense. An effective system of fire begins with artillery concentrations and barrages on likely axes, choke points and deployment lines. There are **four phases** of OPFOR fire support in the defense.

(1) Fire Interdiction of Advancing BLUFOR. Typically begins when the BLUFOR moves into battalion columns. Fire interdiction of advancing BLUFOR troops occurs when the BLUFOR deploys into battalion columns. It continues until the BLUFOR reach their line of departure. Attached or supporting artillery units can occupy temporary fire positions beyond the forward edge of defense. Fixed-wing aviation and long-range artillery carry out fire on distant approaches. Where possible, BLUFOR units are destroyed as they move up, but if target intelligence is inadequate, disruption and delay is inflicted by all available assets.

If the defense is adopted while in contact with the BLUFOR, this phase concentrates on the BLUFOR's second echelon. Throughout the period before the BLUFOR's attack, attention is paid to denying the BLUFOR good target intelligence for his preparation. As much artillery as possible remains silent until needed to repel a major attack. Batteries used before the main BLUFOR attack will fire from temporary fire positions or be used as roving batteries to confuse BLUFOR intelligence.

(2) FIRE to repel the BLUFOR attack. The most important phase in the defense consists of short, intense bursts of fire. This is the most important phase of defensive artillery fire. The phase begins when the BLUFOR crosses the line of departure and ends when he enters the first defensive positions. Fires create a zone of continuous fire in front of the defense. Fire to stop the BLUFOR attack coordinates artillery fire with antitank weapons and all weapons of the maneuver units.

OPFOR artillery tries to break up attacks and split armor from the infantry with planned linear and box concentrations in front of the forward edge positions, and minefields in gaps between strongpoints, and eventually in depth. Guns and multiple rocket launchers start to engage the BLUFOR 15 to 25 km from the line of contact and howitzers will fire when the BLUFOR is within 10 to 15 km. Short but intense fire strikes, no more than fifteen to twenty minutes in duration are fired, followed by displacement to alternate fire positions to avoid counter-battery fire.

(3) FIRE support to defending troops. Fire support of defending troops occurs when artillery units attack BLUFOR that have penetrated the defensive positions of first-echelon maneuver battalions. Its goal is to create fire pockets that destroy the BLUFOR, preventing him from developing the attack. Some batteries may enter preselected direct fire positions. The defender fires against individual targets.

The artillery supports defensive positions in depth, tries to separate BLUFOR infantry from armor and fighting troops from their logistic support. If necessary, artillery may even be used in the direct fire role against armored breakthroughs. The artillery plays a key role in creating suitable conditions for the launching of a counterattack

(4) Fire destruction of the BLUFOR during counterattack. Its goals are to recover lost positions, to destroy the penetrating BLUFOR, and to capture a line to launch offensive operations. This phase has three subphases for artillery support:

- Support for the forward movement of troops.
- Preparation of the counterattack.
- Support of the counterattack.

A successful counterattack requires a stabilized line of contact. This line allows enough time for the second-echelon forces to advance and deploy for the counterattack.

6-7 ANTITANK FIRE IN THE DEFENSE (see also chapter 1 page 1-8 Antitank Reserves).

In the defense, AT units have these **missions**—

- Destroy BLUFOR tanks and APCs forward of the first echelon.
- Destroy tanks and APCs that have penetrated the first defensive echelon.
- Cover gaps in the defense, support the counterattack.

The OPFOR views antitank fires as a critical component to success of a defense. Attack helicopters mounting rockets and ATGMs provide additional AT capabilities and can be used as a quick reaction reserve AT force. ATGM positions are at least 100 meters apart. The normal frontage for the ATGM unit is up to 500 meters for a platoon and 1500 meters for a battery. One or two alternate firing positions are also designated for each ATGM team to allow for maneuver during the conduct of the defense. The normal distance between tanks and antitank weapons in defensive positions is about 100 to 150 meters. On open terrain, 200 to 250 meters may separate tanks in defensive positions.

In the defense, ATGMs have an engagement zone that extends out to 3 km or more from the forward edge. Tanks firing from defilade positions first engage attacking tanks 2 to 3 km in front of the defensive positions. The engagement zone for AT guns extends out to about 1,500 meters. Mounted AT grenade launcher or hand-held grenade launcher weapons can engage BLUFOR armor at ranges less than 1,000 meters.

Fixed-wing aviation, helicopters, and massed artillery may fire against detected armor concentrations in assembly areas. Aircraft, especially ATGM-equipped attack helicopters, are the most effective weapons to engage moving armor forces at greater ranges. Mine laying helicopters may lay hasty AT minefields. The long-range rocket launcher can fire rockets with scatterable-mine warheads deep into the BLUFOR's forward defensive positions and along his axes of advance.

Given the range of artillery, the goal is to **concentrate fires on key sectors to break up the advancing BLUFOR attack**. For example, the OPFOR should plan artillery fire to separate attacking BLUFOR infantry from their tanks approximately 700 to 1,000 meters from the forward edge. Protective fires are targeted within 300 to 400 meters of the forward edge, with concentrations to halt the advance of BLUFOR that have penetrated the defenses. Priority targets for the OPFOR units include tanks and other armored vehicles. Antitank weapons engage BLUFOR tanks at an effective range up to 5 km in front of the forward defenses.

a. Principles of antitank defense. The OPFOR can use AT fires to help channel BLUFOR armor into an open area with limited cover and concealment. Minefields are used in conjunction with AT assets to channel BLUFOR tank movements.

The OPFOR will establish zones of antitank fire. These zones will typically be in front of the forward defensive positions, on the flanks, and between platoon strong points where antitank fires are concentrated during a BLUFOR attack. The most distant boundary of the zone of antitank fire depends on the terrain and the maximum effective range of the weapons systems being employed. The following table provides an example of ATGM ranges. More detail is found in the Equipment Chapter page 3-21.

ATGMs	RANGE (max./min. meters)	GUIDANCE
AT-3c	3000/500	SACLOS
AT-4b	3500/75	SACLOS
AT-5b	4000/75	SACLOS
AT-6b	5000/400	SACLOS
AT-7	1000/50	SACLOS
AT-8	4000/100	SACLOS
AT-10	5000/100	LBR
AT-11	5000/100	LBR
AT-12	5000/100	LBR
AT-14	5500/100	LBR
AT-16	10,000/1000	LBR

Figure 6-8. ATGM ranges.

b. Kill Zones (fire sacks). The OPFOR will establish one or more **kill zones** or **fire sacks** to support strongpoints. A fire sack is an area either forward of the front line of the strongpoint or in the depth of the defense, where a high density of preplanned flanking and frontal fires are placed on the BLUFOR by all available fire means. These fires are designed to produce high casualties among the attacking BLUFOR in a short period of time.

Fire sacks are built to lead the BLUFOR into the area, through the use of natural terrain obstacles as well as minefields, man-made obstacles, and terrain changes. Once in the sack, the BLUFOR is cut off and surrounded by OPFOR units. The obstacles on the edges of the fire sack will serve to contain the BLUFOR, preventing escape. The defenses in the fire sack are well camouflaged and include the use of dummy weapons and positions.

A **typical OPFOR fire sack** can be up to 1,000 meters in depth, with a frontage of 900 to 1,000 meters when created ahead of the forward edge or 500 to 800 meters when created within the strongpoint. Fire sacks may be created by a maneuver of fire, weapons, and units during a defensive battle. They may be either within the main defenses or forward of them in a security zone, but are always contained physically within the defensive positions.

6-8 ENGINEER.

a. Engineer support in the defense involves:

- Supporting the battle and transition to the offense
- Providing reconnaissance of the BLUFOR and terrain
- Repelling BLUFOR attacks in front of forward edge
- Repelling counterattacks or penetrations into defensive sector
- Supporting second-echelon counterattack
- Reinforcing lines taken in counterattack

b. Engineer preparation. The OPFOR divides preparation of the defense into three stages. Obstacles, both natural and manmade, play an important role in the defense.

(1) First Stage. Barbed wire and other obstacles are emplaced in front of the position and fields of view and fire are cleared. Pits or trenches are prepared at the primary position of each fighting vehicle, crew-served weapon, and individual infantryman. Command observation posts and medical posts are dug in. The OPFOR normally allows **5 to 6 hours** for this work.

(2) Second Stage. During the second stage of preparation of the position, fighting vehicles and weapons systems are provided with alternate fire positions. Trenches are linked until they run continuously across the battalion frontage. Communication trenches are prepared. The OPFOR allows an additional **5 to 6 hours** for this phase.

(3) Further Preparation. Further preparation of the position includes improvement of existing trenches and positions, laying further obstacles and preparation of firing lines and routes for antitank reserves and second echelons. Communication trenches may be improved for use as fighting trenches. Dummy positions are prepared in intervals between strongpoints.

c. Minefields and obstacles. Defensive positions are supplemented with minefields and non-explosive obstacles such as antitank ditches and wire. Minefields are placed to channel BLUFOR armor into the kill zones, which can contain more mines, tank traps, and trenches. Obstacles are also placed to hold the BLUFOR in the fire sack. Ideally, these obstacles are placed at about **2/3** of the effective range of the systems that will be covering them. Minefield dimensions are typically configured 300 x 60 meters. Mine outlay can reach 1000 antitank or more per kilometer of frontage on major avenues of approach.

Natural or manmade obstacles will be used to slow, canalize or disrupt the advancement of the BLUFOR. Excellent natural obstacles include lakes, rivers, marshes, ravines, densely forested areas and escarpments. The OPFOR may create additional manmade obstacles such as minefields, antitank ditches, wire entanglements and abatis to further hinder the attacking BLUFOR.

The OPFOR will also use mines and obstacles to protect the flanks of its position. Typically, minefields and obstacles are covered with direct and indirect fires. The level of sophistication of the engineer preparation will depend on the time available and on the engineer resources of each OPFOR unit. Some examples of obstacle emplacement times are shown in *Figure 6-9*.

	Tech Construction Plt with BAT-2	Tech Construction Plt w/ DI	Mine Warfare Plt
8-tree Abatis	N/A	40-50 man-hours	N/A
Concertina Fence	N/A	N/A	N/A
Log Crib Rectangle	N/A	100-200 man-hours	N/A
Hasty minefield 0-300	N/A	N/A	20 min.
Prepared Minefield 0-500	N/A	N/A	60 min.
Tank ditch 100x4 m	20-25 hours	N/A	N/A
Tank ditch 200x4 m	40-50 hours	N/A	N/A
Tank ditch 300x4 m	60-75 hours	N/A	N/A

Figure 6-9. OPFOR Obstacle emplacement times.

b. Engineer Reconnaissance. Engineer troops assist in reconnaissance and preparation of the defense by determining the protective and camouflage features of the terrain and aiding in selection of positions for command posts and strongpoints. Engineers determine road and bridge conditions in the defensive area, availability of local materials for construction of positions, and the status of the water supply. Engineer elements observe BLUFOR preparations for the attack and determine the character and extent of BLUFOR engineer activity. Emphasis is on observing BLUFOR engineer reconnaissance activity and obstacle-clearing elements, BLUFOR route preparation through or around obstacles, and the composition and character of BLUFOR engineer and maneuver elements in the forward areas.

During actual defensive combat, engineer observation posts monitor BLUFOR engineer activity, evaluate zones of destruction, and report areas where the BLUFOR is breaching defensive obstacles. At least one of the posts provides detailed photography of the area of interest. The posts forward all information to the combined arms commander and the chief of engineer service. When the OPFOR forces are on the defensive, engineer reconnaissance elements continue to reconnoiter terrain and the BLUFOR situation to determine routes best suited for a return to offensive action.

The reconnaissance patrol will not normally be given a mission to conduct defensive operations. On rare occasions where the reconnaissance patrol is involved in contact with a superior BLUFOR and cannot extract itself, it may have to take up a defensive position until assistance arrives or it can disengage itself. The reconnaissance patrol will move its vehicles into the best covered and concealed positions available, dismount the scouts, and defend itself against actual or possible BLUFOR, usually in a 360-degree defense.

6-9 AIR SUPPORT.

a. Helicopters. Rotary-wing assets will typically be used by a defending OPFOR to stop an advancing BLUFOR. Attack helicopters will serve in this role. They are entered into the defense at the point where the attacking BLUFOR is deploying into platoon columns (2 to 3 km). If the BLUFOR gains territory in the OPFOR defensive area, the attack helicopters are used as an antitank reserve. They may also be used to strike any assault landing forces that enter into the rear of the OPFOR defense.

Helicopters are located in a deployment location where they can be brought into action quickly, but out of range of the BLUFOR (25km+). Once the BLUFOR attacks, the helicopter flight is called to action and lifts from its deployment location. Helicopters will advance at the lowest possible altitude (20-30 m) using terrain masking to hide movement.

Once they reach the front line, the helicopters will raise up to a search altitude 35-70 m over level terrain and 100-245 m over rolling terrain. The search will be conducted from behind some natural concealment such as woods or hills. The OPFOR prefers to keep attack helicopters within the safety net of friendly air defense systems. Typically, two attack helicopters will be used per flight. Flight speeds can reach 200 kph. OPFOR attack helicopter missile systems have ranges from 5 to 10 km that allow for maximum standoff distances.

In the defense, **targets** for attack helicopters include:

- Tanks and IFVs in attack formations.
- Artillery in firing positions.
- Helicopters at forward jumping-off locations.
- First-echelon command posts.
- Brigade reserves.

When the BLUFOR target is located, the helicopter will fire (if within range) or maneuver to a position closer to where the target can be reached. When firing the helicopters must aim and fire and withdraw with the following restrictions:

- MI-24 with the AT-6 must be guided to the target.
- MI-24 the gunner must keep his sight on the target until the missile strikes (approx. 11 seconds at max. range of 5,000 m).
- KA-50 has a fire and forget missile.

If the attacking BLUFOR gains a foothold in the OPFOR's defensive position, helicopters will be used as AT reserves and will be brought forward in flights of 2 to 4 to fire on the BLUFOR.

b. Fixed-wing Aircraft. In the defense, OPFOR ground attack aircraft are deployed deep with ATGMs after the BLUFOR had deploys into platoon columns. The ground attack aircraft will also target the BLUFOR brigade follow on forces. The ground attack fixed-wing aircraft used in the support of an OPFOR defense will be used to interdict advancing BLUFOR (initially done to a depth of 12-15 km forward of the front lines).

Targets for the fixed-wing aircraft include:

- Tank and mechanized infantry lines of deployment.
- Artillery firing positions.
- First-echelon battalion and brigade command posts.
- Brigade reserves.

Other targets are left for the attack helicopters. The attack aircraft will initially attack the battalion and company deployment lines (12-15 km and 5-6 km deep). Ground attack aircraft are organized in flights of 2, 4, or 8 aircraft.

6-10 COUNTERATTACK.

A successful counterattack requires the same force ratios as an ordinary attack. The OPFOR constantly emphasizes that the defense is a temporary form of combat, making the transition to the offense easier. The OPFOR may opt to 1) execute a counterattack when the BLUFOR's attack stalls or, 2) restore the defense should the BLUFOR succeed in breaching defensive positions. The OPFOR will develop a counterattack with the second-echelon or reserve forces. Tanks normally spearhead the counterattacks, following an intense air and artillery preparation, and with the support of fires of adjacent units.

a. Features. The main features of OPFOR counterattacks are as follows:

- The BLUFOR's attack must have been halted or, at the very least, the momentum of the attack must have been slowed. Antitank reserves and mobile obstacle detachments can be used to achieve this.
- The BLUFOR must be unable to commit a reserve into the penetration, either because it has already been committed, or because it has been neutralized by long range artillery fire.

b. Ambushes. Ambushes are a feature of any OPFOR defense. In size, they vary from individual weapon systems to a platoon and are generally formed from second-echelon units. Tanks, BMPs, antitank weapons, and helicopters are all used for ambushes. They are sited on likely axes of approach, on flanks and in gaps and between first- and second-echelon positions. The goal of the ambush is to reduce the BLUFOR's strength before he reaches the main position and to slow his advance.

6-11 WITHDRAWAL OR DISENGAGEMENT ACTIONS.

A withdrawal or disengagement by the OPFOR takes place due to unfavorable conditions following an offensive, while in a defense, or during a meeting engagement when it is determined that the BLUFOR has gained the tactical advantage.

a. Features of a Withdrawal.

- OPFOR mechanized and armor companies will most often execute a withdrawal as a part of a battalion. The company may be the battalion rear guard or part of main body, but it can also act independently.
- The OPFOR will execute a withdrawal based on the losses sustained by the OPFOR. For example, a company will need to sustain a minimum of **20%** in losses in the defense or **30%** in the offense.
- Typically the withdrawal will take place at night or under obscure weather conditions to provide cover for the moving force. However, BLUFOR pressure is the critical trigger to execute a withdrawal.

b. Types of Withdrawal.

(1) Forced. The forced withdrawal is done under overwhelming BLUFOR pressure, or when the holding of a defensive position is no longer possible.

(2) Deliberate. The deliberate withdrawal is conducted when the commander realizes that his forces are in an unfavorable situation. Before the BLUFOR is able to take advantage of this, he will move to a more favorable position. This type of withdrawal can also be done with the idea of reinforcing a sector that has been weakened, or to lead the BLUFOR into a fire sack.

c. Engineer Support in the Withdrawal. Prior to a deliberate withdrawal, engineers will establish minefields in front of the new defensive positions. Engineers will mark corridors through which the withdrawing troops may move. If the OPFOR expects BLUFOR contact, the engineers may place minefields after the withdrawal is completed.

d. Covering Force in a Withdrawal. The OPFOR will designate covering force, withdraw routes, collection points, final assembly area and time of the withdrawal. The covering force has the mission to deceive the BLUFOR and to cover the initial withdrawal of the main body. A covering force is composed of units deployed along the forward edge of the defensive area, typically reinforced platoons from each of the forward-deployed companies.

(1) If the company is designated to be the rear security for the battalion or brigade: The company will have been a second-echelon company of the battalion or a company in the second-echelon battalion of the brigade,

therefore, it will not be in direct contact with the BLUFOR at the time the withdrawal begins. Its mission is to prevent the breakthrough of the BLUFOR during the withdrawal of the main body of the battalion or brigade. The OPFOR should reinforce the company with a mechanized infantry platoon, an engineer platoon, and an artillery battery.

(2) If the **company is attacked** by the BLUFOR during the execution of the withdrawal and the covering force or rear security company cannot contain them, the OPFOR will go into a temporary defensive position and begin to execute a defense. The company must be prepared to respond to BLUFOR fire.

(3) If the **company is going to withdraw as a part of the battalion** the company commander designates a covering force. This force is made up of one platoon from the first echelon of the defense and one squad of mechanized infantry (if available).

The OPFOR will designate all withdrawal routes for the remaining elements from their current positions to the platoon collection point. The platoon collection point is located to the rear of the second echelon platoon and it is an area where the company commander can place all of his subordinate elements, minus the covering force, into a company formation and move as a company to the new line of deployment or assembly area.

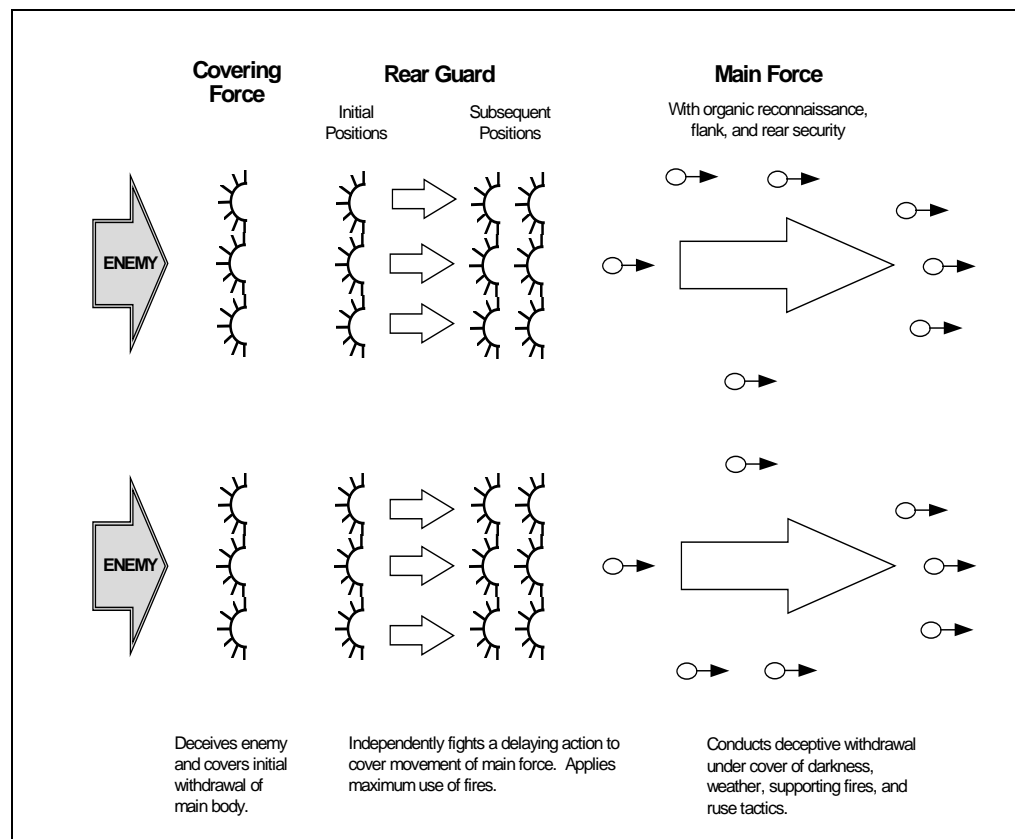


Figure 6-10. OPFOR withdrawal.

6-12 DEFENDING IN SPECIAL SITUATIONS.

a. Cities. When defending in cities or other built-up areas, a battalion's or company's combat formation can be in one or two echelons. Two-echelon formations are the most common. The combat formation may include a reserve (even in a two-echelon formation) and armored groups to provide mobile firepower and ambushes. Battalions can form assault groups in their second echelon, identical in strength and structure to those used in the attack. These are used to recover any key buildings captured by the BLUFOR.

The forward edge of the defense is established on the outskirts of the town, or out in the country if it is required to hold dominating ground. A security zone is often organized outside the town. The mechanized infantry battalion and mechanized infantry company are the basic building blocks of the defense, and they receive strong reinforcements.

Tanks and most of the supporting artillery are given to mechanized infantry elements to provide direct fire from strongpoints, covering any reasonable field of fire.

Antitank weapons are positioned to cover road junctions and to fire along streets. Engineer assets are incorporated down to company level to assist in fortifying buildings, creating obstacles and improving routes between strongpoints. Strongpoints are expected to continue to resist even when encircled; additional reserves of ammunition and other supplies can be pre-positioned to provide a considerable measure of tactical independence.

b. Mountains. In mountain areas, the defender can hold a wider frontage than in normal terrain, but also faces extra difficulties in organizing his defenses. In particular, the lack of roads restricts maneuver, and the defense is based on separate strongpoints established to hold vital ground such as commanding heights, passes road junctions and river crossings. On plateaus and in wide valleys the defense is organized normally.

A two-echelon defense is standard in mountain areas, although in sectors unsuitable for armored movement the defense may be organized in one echelon, with a reserve. A minimum of resources is allocated to terrain unsuitable for any movement. Strongpoints are organized for all-around defense. Reconnaissance patrols, obstacles, demolitions, and ambushes cover the intervals between them.

The OPFOR makes effective use of ambushes in mountain operations, not only in gaps between positions, but in front of them and in depth. Holding the ground dominating the approaches, with part of the defending force deployed in the pass itself covers mountain passes. Obstacles and mines are laid on the road through the pass and covered by crossing fire. Crossing fire from either side covers narrow canyons.

If the BLUFOR succeeds in penetrating the defense, the OPFOR expects strongpoints to continue their resistance on the flanks, even if totally encircled. Counterattacks are attempted, even with small forces, using prepared routes and attacking from higher ground whenever possible. The OPFOR considers that mountain areas favor attempts by the defender to strike into the BLUFOR's depth. Special-purpose forces, raiding and other detachments are infiltrated into BLUFOR-held areas by ground or helicopter.

c. Deserts. Deserts offer mixed terrain, with areas capable of supporting high rates of movement interspersed with soft sand, and dunes that restrict movement. Defense sectors are often wider than usual. The OPFOR practice is to cover the most likely axes with battalion defensive areas and company strongpoints, organized for all-around defense, and accept greater intervals than usual between them. Strong second echelons or reserves are held to counterattack or reinforce threatened sectors. The improvement of maneuver routes is a vital engineer task in desert warfare.

The openness of desert terrain offers longer fields of view and fire. Reconnaissance is organized in greater depth than normal and direct fire weapons are effective at longer ranges, making it possible to increase unit frontages. High-precision weapons are more effective in such terrain, and special attention must be paid to camouflage and concealment.

Defenses are organized in greater depth in the desert. Distances between echelons are greater and forces more dispersed. Reserves, mainly tank-heavy, are held in greater depth than usual and may be employed to counter BLUFOR enveloping movements. Mechanized infantry unit frontages in the forward area are similar to those in the normal defense. Mechanized infantry companies normally organize in a single echelon. Divisions and brigades may defend independently. Mined sectors and areas of limited trafficability may be lightly defended; only mobile patrols or outposts may cover them.

Fortification work is much more difficult in deserts. Soft sand needs reinforcement, and there is generally a shortage of local material to use in preparing defenses. Strong winds blowing sand and dust mean that great care is required to keep all equipment and weapons serviceable. Laying mines is difficult in many sectors, and even when minefields are laid, they must be inspected regularly to check to see that they have not been exposed by the wind.

d. Northern Regions. As is often the case in defense in special conditions, a sector in a northern area can be held with weaker forces than on normal terrain. Wider frontages are achieved by accepting larger intervals between platoon and company strongpoints. Strongpoints are positioned to cover roads, dominant high ground, defiles, and river crossings. Obstacles, patrols, and ambushes cover gaps. Strongpoints are made as logistically self-sufficient as possible, so they can continue to operate, even if cut-off by the BLUFOR or the climate. Fortifications may have to be built above ground level, but where snow cover is deep enough, trench systems are dug.